

Science and Engineering Doctorate Awards: 1997

Detailed Statistical Tables

Division of Science Resources Studies
Directorate for Social, Behavioral, and Economic Sciences

National Science Foundation



January 1999

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Susan T. Hill, Author

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GENERAL NOTES

The data presented in this report show trends in doctorate awards by science and engineering (S&E) field and recipient characteristics, institutions awarding doctorates, and postgraduation plans of recipients. The source of the data is the Survey of Earned Doctorates (SED).

The SED has been conducted annually for the National Science Foundation (NSF) and four other Federal agencies. Information from this survey becomes part of the Doctorate Records File, which is a census of recipients of research doctorates awarded since 1920 by regionally-accredited universities and colleges. Doctoral degrees such as the Ph.D. or D. Sc. are included in these surveys, but first-professional degrees such as the J.D. or M.D. are not.

Data for the SED are collected directly from the individual doctorate recipients. The questionnaire is distributed to them through the cooperation of the Graduate Deans to persons as they are completing their doctorate. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year.

These tables present detailed data on (S&E) doctorates recipients, with some totals provided for broad non-S&E fields. Detailed data on non-S&E fields are published in the Summary Report and by other Federal sponsors of the Survey of Earned Doctorates. The groupings of field specialties into broad fields may differ among the sponsoring agencies according to their missions.

Approximately 91 percent of the annual cohort of doctorate recipients in 1997 responded to the questionnaire. Over the decade, though, the response rate ranged from 93 percent in 1988, then increased to 95 percent in 1994, then declined to 91 percent in 1997. Note that most of the numbers presented are actual self-reports, as there are no adjustments for nonresponse. For the nonrespondents, partial data from public sources are added to the file for nonrespondents; therefore, complete counts are presented for conferred doctorates by field of study and sex of recipient. Although some tables present data subject to nonresponse, the estimates represent the conservative known estimate for any data item. Therefore, small changes in numbers should be interpreted with caution, as numerical trends are affected by fluctuations in response rates and declines and increases may appear greater than they may be in reality.

For further information on the survey methodology or the availability of data on S&E doctorate recipients, please go to <http://www.nsf.gov/sbe/srs/ssed/sedmeth.htm> or contact—

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**Table 1. Science and engineering (S&E) doctorates awarded,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Science and engineering, total	20,932	21,732	22,868	24,023	24,675	25,443	26,205	26,535	27,230	26,847
Engineering, total	4,187	4,543	4,894	5,214	5,438	5,698	5,822	6,008	6,305	6,052
Aeronautical/astronautical engineering	150	178	192	207	234	228	230	252	287	272
Chemical engineering, total	685	712	658	691	725	737	725	708	798	764
Chemical	624	625	561	621	607	624	630	602	681	659
Petroleum	33	29	49	28	54	52	42	48	52	51
Polymer/plastics ¹	28	58	48	42	64	61	53	58	65	54
Civil engineering, total	531	538	553	575	594	624	684	656	697	653
Civil	488	498	505	509	540	563	602	572	599	591
Environmental health	43	40	48	66	54	61	82	84	98	62
Electrical engineering, total	1,010	1,137	1,276	1,405	1,483	1,543	1,673	1,731	1,740	1,695
Communications	24	25	35	21	30	22	33	29	32	32
Computer	100	117	131	178	175	167	202	189	208	219
Electrical/electronics	886	995	1,110	1,206	1,278	1,354	1,438	1,513	1,500	1,444
Industrial/manufacturing engineering ²	127	162	151	165	196	236	228	284	258	241
Materials/metallurgical engineering, total	374	380	440	489	485	535	539	588	572	573
Ceramic sciences ³	30	35	43	58	42	42	39	39	41	40
Materials science	252	257	307	361	365	416	433	476	470	477
Metallurgical	92	88	90	70	78	77	67	73	61	56
Mechanical engineering, total	715	760	884	875	987	1,030	1,015	1,025	1,052	1,010
Mechanical	610	650	773	762	855	902	883	917	947	915
Engineering mechanics	105	110	111	113	132	128	132	108	105	95
Other engineering, total	595	676	740	807	734	765	728	764	901	844
Agricultural	70	102	101	83	84	86	89	73	104	78
Bioengineering/biomedical	114	115	129	149	147	171	173	189	220	205
Engineering physics	9	16	16	23	25	21	17	17	37	24
Engineering science	32	27	37	42	51	55	46	56	52	46
Mining/mineral	17	33	39	38	26	24	23	19	31	33
Naval architecture/marine ⁴	9	9	8	5	N/A	N/A	N/A	N/A	N/A	N/A
Nuclear	104	86	114	107	120	108	85	105	113	99
Ocean	21	20	17	21	21	24	29	21	26	34
Operations research	44	68	46	76	56	56	47	48	74	75
Systems	44	30	51	48	37	57	51	47	47	49
Engineering, general	49	61	75	78	64	47	39	60	60	50
Engineering, other	82	109	107	137	103	116	129	129	137	151
Sciences, total	16,745	17,189	17,974	18,809	19,237	19,745	20,383	20,527	20,925	20,795
Physical sciences, total	3,350	3,261	3,524	3,626	3,781	3,699	3,977	3,841	3,838	3,711
Astronomy, total	130	113	128	125	134	145	144	173	192	197
Astronomy	66	49	52	50	55	76	66	89	84	72
Astrophysics	64	64	76	75	79	69	78	84	108	125
Chemistry, total	2,015	1,970	2,100	2,194	2,214	2,137	2,257	2,162	2,148	2,115
Analytical	301	289	293	304	304	286	334	317	346	351
Inorganic	250	256	242	260	268	237	262	258	249	276
Medicinal/pharmaceutical ⁵	73	64	48	83	69	99	102	96	96	107
Nuclear	7	6	13	14	7	8	10	5	5	8
Organic	531	511	452	538	512	518	544	483	506	567
Physical	318	310	325	364	398	336	334	338	300	333
Polymer	81	78	81	111	83	107	117	116	121	110
Theoretical	50	46	55	45	59	53	52	40	57	48
Chemistry, general	310	312	524	400	449	431	447	458	396	231
Chemistry, other	94	98	67	75	65	62	55	51	72	84

See explanatory information, if any, and SOURCE at end of table.

**Table 1. Science and engineering (S&E) doctorates awarded,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Physics, total	1,172	1,161	1,265	1,286	1,403	1,399	1,548	1,479	1,485	1,379
Acoustics	16	15	21	13	18	27	20	18	19	19
Chemical & atomic/ molecular ⁶	77	74	87	76	85	95	140	110	129	105
Electron ⁴	2	4	2	1	N/A	N/A	N/A	N/A	N/A	N/A
Elementary particle	174	135	163	182	153	170	176	183	175	170
Fluids	17	14	17	14	17	19	12	18	21	24
Nuclear	88	81	73	66	86	82	90	91	87	105
Optics	65	78	76	85	94	96	104	98	129	123
Plasma & high-temperature ⁷	65	61	42	58	65	62	79	46	48	39
Polymer	20	7	11	17	17	29	29	23	33	19
Solid state & low-temperature ⁸	252	296	306	372	408	336	388	371	364	327
Physics, general	271	269	323	247	297	340	343	355	324	246
Physics, other	125	127	144	155	163	143	167	166	156	202
Other physical sciences	33	17	31	21	30	18	28	27	13	20
Earth, atmospheric, and ocean sciences, total	695	723	738	815	794	771	824	780	794	862
Atmospheric sciences, total	103	87	83	108	120	99	129	130	125	147
Atmospheric dynamics	25	16	20	21	23	23	27	16	21	25
Atmospheric physics/ chemistry	19	15	18	20	36	13	27	27	22	43
Meteorology	35	27	20	31	28	34	32	25	35	28
Atmospheric science/ meteorology, general	14	14	23	26	27	22	37	44	33	36
Atmospheric science/ meteorology, other	10	15	2	10	6	7	6	18	14	15
Geosciences, total	425	455	477	560	503	479	509	454	452	482
Applied geology ⁴	7	6	6	1	N/A	N/A	N/A	N/A	N/A	N/A
Geology	144	165	166	192	166	197	194	186	162	162
Geochemistry	46	39	56	64	62	50	59	42	49	50
Geomorphology/glacial geology	9	10	14	18	12	16	13	11	11	26
Geophysics/seismology	83	87	91	117	108	101	106	93	101	105
Hydrology/water resources	24	24	13	16	29	25	30	24	31	43
Mineralogy/petrology	19	36	26	36	29	9	21	19	23	18
Paleontology	24	17	21	24	25	21	17	20	14	23
Stratigraphy/sedimentation	30	24	25	29	23	28	27	16	12	23
Geological & related sciences, general	8	19	31	30	18	15	18	21	27	15
Geological & related sciences, other	31	28	28	33	31	17	24	22	22	17
Oceanography, total	109	113	128	112	114	125	125	115	134	141
Marine sciences	28	26	39	27	32	27	34	32	27	29
Oceanography	81	87	89	85	82	98	91	83	107	112
Other environmental sciences	58	68	50	35	57	68	61	81	83	92
Mathematical/computer sciences, total	1,264	1,471	1,597	1,839	1,927	2,026	2,021	2,187	2,043	2,001
Mathematics, total	749	859	892	1,039	1,058	1,146	1,118	1,190	1,122	1,112
Algebra	54	50	39	72	69	84	78	82	78	79
Analysis/functional analysis	76	103	90	132	105	105	107	99	100	103
Applied mathematics	142	158	185	193	213	188	206	211	230	241
Computing theory	12	12	12	19	12	18	16	14	18	14
Geometry	44	47	42	66	45	44	35	45	72	70
Logic	20	12	19	23	28	19	29	35	16	23
Mathematical statistics ⁹	152	167	157	206	217	228	205	205	178	182
Number theory	26	23	26	30	25	42	37	35	42	46
Operations research	29	22	29	16	22	37	26	36	21	20
Topology	27	37	50	57	58	54	38	51	55	62
Mathematics, general	134	177	191	180	209	276	269	305	233	143
Mathematics, other	33	51	52	45	55	51	72	72	79	129
Computer sciences, total	515	612	705	800	869	880	903	997	921	889
Computer science	442	519	612	720	791	825	833	913	837	812
Information science/systems	73	93	93	80	78	55	70	84	84	77

See explanatory information, if any, and SOURCE at end of table.

**Table 1. Science and engineering (S&E) doctorates awarded,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Biological/agricultural sciences, total	5,126	5,202	5,502	5,723	5,862	6,060	6,281	6,412	6,760	6,683
Biological sciences, total	4,111	4,116	4,328	4,650	4,799	5,092	5,203	5,376	5,723	5,717
Bacteriology	7	11	15	11	13	14	18	13	16	13
Biochemistry	612	669	678	765	715	846	804	824	794	821
Biomedical sciences ¹⁰ .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	93	140	158
Biophysics	97	87	103	100	125	103	123	155	142	148
Biotechnology research ¹¹	N/A	N/A	N/A	N/A	N/A	8	14	4	6	11
Plant genetics	26	18	31	23	33	41	30	35	41	29
Plant pathology	30	22	37	50	32	41	40	32	38	33
Plant physiology	74	47	51	65	68	48	70	55	73	46
Botany, other	112	117	104	105	107	105	117	102	105	91
Anatomy	88	80	70	77	75	76	66	64	47	50
Biometrics/biostatistics	47	46	47	59	63	74	72	67	81	85
Cell biology	118	133	145	149	188	231	237	236	233	249
Developmental biology/embryology ¹²	7	10	22	37	48	57	62	64	96	114
Ecology	155	161	166	189	180	177	201	203	245	250
Endocrinology	21	21	24	33	27	16	26	20	24	17
Entomology	133	139	147	138	139	114	123	121	136	122
Biological immunology ¹³	179	152	153	177	181	169	161	190	238	211
Microbiology	333	340	335	372	377	433	423	426	444	407
Molecular biology	364	413	413	481	527	582	598	617	651	768
Neuroscience	163	181	192	238	238	276	284	309	404	432
Nutritional sciences	127	128	118	106	132	134	147	136	142	123
Parasitology	20	20	13	20	17	17	22	14	22	17
Toxicology	108	111	91	86	105	100	120	126	138	180
Human/animal genetics	118	112	153	160	142	172	203	202	212	213
Human/animal pathology	112	105	101	122	114	130	128	109	135	106
Human/animal pharmacology	252	242	244	266	279	274	259	278	316	296
Human/animal physiology	225	272	278	272	266	271	289	262	275	225
Zoology, other	167	132	122	125	134	114	117	145	100	96
Biological sciences, general	256	231	333	278	315	305	288	348	291	193
Biological sciences, other	160	116	142	146	159	164	161	126	138	213
Agricultural sciences, total	1,015	1,086	1,174	1,073	1,063	968	1,078	1,036	1,037	966
Agronomy & crop science ¹⁴	141	140	143	117	123	104	143	114	110	76
Animal breeding/genetics	27	23	22	18	23	18	17	19	12	24
Animal nutrition	54	67	54	57	41	52	58	50	54	55
Dairy science	12	16	20	19	14	11	11	14	9	14
Poultry science	10	11	17	13	22	16	21	11	12	9
Animal sciences, other	86	95	90	92	97	74	86	85	90	59
Fisheries science & management ¹⁵	42	34	42	39	26	38	48	49	46	43
Wildlife/range management ¹⁶	39	52	58	59	55	54	52	50	64	48
Food sciences ¹⁷	16	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Food engineering ¹⁷	6	11	10	12	14	9	16	7	7	11
Food sciences, other ¹⁷	119	147	141	137	151	141	153	135	142	172
Forestry science ¹⁸	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Forest biology ¹⁸	21	22	27	17	29	18	20	24	19	22
Forest engineering ¹⁸	3	1	2	2	2	3	N/A	4	0	13
Forest management ¹⁸	18	21	14	22	16	17	17	20	22	21
Wood science & pulp/paper technology ¹⁸	7	16	16	16	21	20	26	26	18	25
Conservation/renewable natural resources ¹⁸	7	12	16	19	9	13	21	24	13	17
Forestry & related sciences, other ¹⁸	35	57	62	45	62	55	59	71	56	52
Horticulture science	61	75	101	78	65	62	65	67	73	44
Plant breeding/genetics	83	64	87	69	82	68	81	72	63	67
Plant pathology	46	63	64	90	63	58	55	52	90	64
Plant protection-pest management ¹⁹	1	6	4	2	N/A	N/A	N/A	N/A	N/A	N/A
Plant sciences, other	23	15	23	17	29	28	24	30	21	19
Soil sciences ²⁰	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Soil chemistry/microbiology ²⁰	33	28	27	24	24	26	21	27	29	32
Soil sciences, other ²⁰	62	75	91	78	63	59	69	72	78	55
Agricultural sciences, general	9	7	5	3	9	10	4	6	5	8
Agricultural sciences, other	21	27	38	28	23	14	11	7	4	16

See explanatory information, if any, and SOURCE at end of table.

**Table 1. Science and engineering (S&E) doctorates awarded,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Psychology, total	3,074	3,208	3,281	3,250	3,263	3,420	3,379	3,429	3,491	3,489
Clinical	1,095	1,259	1,337	1,305	1,309	1,373	1,285	1,291	1,325	1,261
Cognitive psychology & psycholinguistics ²¹	83	79	76	94	101	104	129	104	128	162
Comparative	7	8	8	7	2	5	8	4	3	6
Counseling	482	501	466	497	507	488	497	470	464	477
Developmental & child ²²	176	148	159	155	170	202	179	152	188	211
Human/indiv. & family dev ²³ .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	121
Educational	103	105	98	110	91	91	69	74	92	60
Experimental	135	146	143	142	154	143	139	151	128	140
Family & marriage counseling ¹⁰ .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	57	52	61
Industrial/organizational	118	104	126	142	138	159	137	155	162	184
Physiological/psychobiology ²⁴	85	62	46	45	55	85	93	92	80	77
Quantitative	12	11	15	7	10	16	17	13	19	17
Personality	18	28	20	13	17	22	19	16	24	25
Psychometrics	11	6	8	9	5	9	5	10	11	11
School	115	107	82	82	88	95	84	91	82	84
Social	140	128	145	147	139	125	153	155	170	179
Psychology, general	368	364	371	324	295	306	280	306	279	286
Psychology, other	126	152	181	171	182	197	285	288	284	127
Social sciences, total	3,236	3,324	3,332	3,556	3,610	3,769	3,901	3,878	3,999	4,049
Economics, total	1,008	1,062	1,007	1,053	1,051	1,067	1,101	1,152	1,177	1,146
Agricultural economics	156	164	145	168	141	137	162	173	169	135
Econometrics	27	26	26	24	25	24	26	27	29	29
Economics	825	872	836	861	885	906	913	952	979	982
Political science, total	634	700	734	740	804	824	930	894	928	961
International relations & affairs ²⁵	77	94	97	88	76	102	112	73	99	84
Political science/government	392	430	462	434	513	507	589	600	621	654
Public administration	92	97	88	107	108	117	135	128	104	95
Public policy analysis ²⁶	73	79	87	111	107	98	94	93	104	128
Sociology, total	468	458	448	493	512	535	548	555	527	595
Demography/population studies ²⁷	19	22	20	28	17	22	23	15	11	24
Sociology	449	436	428	465	495	513	525	540	516	571
Other social sciences, total	1,126	1,104	1,143	1,270	1,243	1,343	1,322	1,277	1,367	1,347
American studies	70	76	72	92	81	101	88	94	115	80
Anthropology	325	325	324	341	320	342	384	375	396	430
Archaeology	23	26	22	33	33	38	34	35	21	34
Area studies	16	17	22	24	33	36	34	27	28	10
Criminology	43	32	42	35	37	39	41	44	60	50
Geography	129	105	131	108	111	137	146	150	165	145
History/philosophy of science & technology ²⁸	22	20	26	27	28	37	27	41	37	34
Linguistics	166	188	167	227	266	214	221	201	230	243
Statistics	47	69	69	31	29	48	46	48	48	56
Urban affairs & studies ²⁹	86	62	67	90	86	123	132	103	106	91
Social sciences, general	28	26	23	36	33	32	21	35	26	20
Social sciences, other	171	158	178	226	186	196	148	124	135	154

See explanatory information, if any, and SOURCE at end of table.

**Table 1. Science and engineering (S&E) doctorates awarded,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-S&E, total ³⁰	12,568	12,595	13,199	13,511	14,215	14,358	14,829	15,208	15,185	15,858
Health	882	974	956	1,041	1,112	1,197	1,296	1,330	1,324	1,394
Humanities ³¹	3,274	3,242	3,535	3,720	4,036	4,092	4,374	4,690	4,713	4,996
Education	6,362	6,281	6,510	6,454	6,677	6,689	6,708	6,649	6,772	6,497
Professional/other	2,050	2,098	2,198	2,296	2,390	2,380	2,451	2,539	2,376	2,971
Grand total, all fields	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,415	42,705

- ¹ In 1993 this subfield was changed from "Polymer engineering" to "Polymer and plastics engineering."
- ² In 1993 this subfield was changed from "Industrial engineering" to "Industrial and manufacturing engineering."
- ³ In 1993 this subfield was changed from "Ceramic engineering" to "Ceramic sciences engineering."
- ⁴ These subfields were deleted in 1991: "Naval architecture/marine engineering," "Electron physics," and "Applied geology."
- ⁵ In 1993 this subfield was changed from "Pharmaceutical chemistry" to "Medicinal and pharmaceutical chemistry."
- ⁶ In 1993 this subfield was changed from "Atomic/molecular physics" to "Chemical and atomic/molecular physics."
- ⁷ In 1993 this subfield was changed from "Plasma physics" to "Plasma and high-temperature physics."
- ⁸ In 1993 this subfield was changed from "Solid state physics" to "Solid state and low-temperature physics."
- ⁹ In 1993 this subfield was changed from "Math probability and statistics" to "Mathematical statistics."
- ¹⁰ These subfields were introduced in 1995: "Biomedical sciences" and "Family and marriage counseling."
- ¹¹ "Biotechnology research" was introduced in 1993.
- ¹² In 1990 this subfield was changed from "Embryology" to "Developmental biology/embryology."
- ¹³ In 1993 this subfield was changed from "Immunology" to "Biological immunology."
- ¹⁴ In 1993 this subfield was changed from "Agronomy" to "Agronomy and crop science."
- ¹⁵ In 1993 this subfield was changed from "Fisheries science" to "Fisheries science and management."
- ¹⁶ In 1988 this subfield was changed from "Wildlife management" to "Wildlife/range management."
- ¹⁷ In 1988 "Food sciences" was separated into "Food distribution," "Food engineering," and "Food sciences, other."
- ¹⁸ In 1988 "Forestry science" was separated into "Forest biology," "Forest engineering," "Forest management," "Wood science," "Renewable natural resources," and "Forestry and related sciences, other." In 1993 "Pulp and paper technology" was added to "Wood science," and "Conservation" was added to "Renewable natural resources." "Forest engineering" was deleted from the survey in 1994 and reintroduced in 1995.
- ¹⁹ "Plant protection-pest management" was deleted in 1991.
- ²⁰ In 1988 "Soil sciences" was separated into "Soil chemistry/microbiology" and "Soil sciences, other."
- ²¹ In 1993 this subfield was changed from "Cognitive psychology" to "Cognitive psychology and psycholinguistics."
- ²² In 1993 this subfield was changed from "Developmental psychology" to "Developmental and child psychology."
- ²³ "Human/individual & family development" was introduced in 1996.
- ²⁴ In 1993 this subfield was changed from "Physiological psychology" to "Physiological psychology/psychobiology."
- ²⁵ In 1993 this subfield was changed from "International relations" to "International relations and affairs."
- ²⁶ In 1993 this subfield was changed from "Public policy studies" to "Public policy analysis."
- ²⁷ In 1993 this subfield was changed from "Demography" to "Demography and population studies."
- ²⁸ In 1993 this subfield was changed from "History of science" to "History and philosophy of science and technology."
- ²⁹ In 1993 this subfield was changed from "Urban studies" to "Urban affairs and studies."
- ³⁰ Non-S&E doctorates include those whose field of specialization is unknown.
- ³¹ Categories differ from those published by other Federal sponsors and the Summary Reports in that linguistics, history of science, American studies, and archaeology are included not in humanities but in social science.

KEY: N/A = Not available (i.e., the subfield was not identified separately in the questionnaire for that year)

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

**Table 2. Science and engineering (S&E) doctorates awarded to women,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Percent women	
											1988	1997
Science and engineering, total	5,662	6,109	6,370	6,932	7,080	7,652	7,920	8,288	8,646	8,796	27.0	32.8
Engineering, total	286	375	415	467	506	522	635	696	776	747	6.8	12.3
Aeronautical/astronautical engineering	9	8	4	7	8	8	11	14	24	16	6.0	5.9
Chemical engineering, total	65	80	78	83	113	94	113	109	143	123	9.5	16.1
Chemical	60	74	71	75	101	83	101	96	126	107	9.6	16.2
Petroleum	2	1	0	1	3	5	3	1	3	3	6.1	5.9
Polymer/plastics ¹	3	5	7	7	9	6	9	12	14	13	10.7	24.1
Civil engineering, total	30	54	49	41	50	54	80	76	79	80	5.6	12.3
Civil	25	45	39	31	36	45	56	55	64	70	5.1	11.8
Environmental health	5	9	10	10	14	9	24	21	15	10	11.6	16.1
Electrical engineering, total	48	67	84	79	115	125	147	173	169	150	4.8	8.8
Communications	3	1	2	2	1	2	5	5	2	3	12.5	9.4
Computer	7	12	11	9	13	15	25	18	23	21	7.0	9.6
Electrical/electronics	38	54	71	68	101	108	117	150	144	126	4.3	8.7
Industrial/manufacturing engineering ²	19	18	25	17	25	27	33	50	51	36	15.0	14.9
Materials/metallurgical engineering, total	33	45	49	77	61	78	83	95	83	106	8.8	18.5
Ceramic sciences ³	3	4	11	10	9	6	9	5	3	8	10.0	20.0
Materials science	25	35	31	59	50	67	69	84	71	96	9.9	20.1
Metallurgical	5	6	7	8	2	5	5	6	9	2	5.4	3.6
Mechanical engineering, total	29	29	38	57	45	57	69	64	78	87	4.1	8.6
Mechanical	26	22	29	50	33	46	60	56	68	81	4.3	8.9
Engineering mechanics	3	7	9	7	12	11	9	8	10	6	2.9	6.3
Other engineering, total	53	74	88	106	89	79	99	115	149	149	8.9	17.7
Agricultural	3	6	7	8	6	6	10	7	17	12	4.3	15.4
Bioengineering/biomedical	18	26	23	27	33	31	45	48	49	52	15.8	25.4
Engineering physics	0	0	1	2	2	3	3	1	3	4	.0	16.7
Engineering science	3	3	6	3	6	3	3	6	4	8	9.4	17.4
Mining/mineral	1	4	2	6	3	1	3	0	3	3	5.9	9.1
Naval architecture/marine ⁴	0	1	1	0	N/A	N/A	N/A	N/A	N/A	N/A	.0	-
Nuclear	4	7	9	6	9	5	8	9	9	8	3.8	8.1
Ocean	0	2	2	1	0	1	2	3	3	5	.0	14.7
Operations research	4	14	6	22	11	10	7	8	16	16	9.1	21.3
Systems	7	3	3	4	3	4	5	5	9	10	15.9	20.4
Engineering, general	2	2	10	7	3	3	4	9	11	3	4.1	6.0
Engineering, other	11	6	18	20	13	12	9	19	25	28	13.4	18.5
Sciences, total	5,376	5,734	5,955	6,465	6,574	7,130	7,285	7,592	7,870	8,049	32.1	38.7
Physical sciences, total	567	619	661	679	770	780	828	878	842	833	16.9	22.4
Astronomy, total	16	17	20	14	19	25	25	30	41	35	12.3	17.8
Astronomy	13	8	13	7	11	12	9	18	21	17	19.7	23.6
Astrophysics	3	9	7	7	8	13	16	12	20	18	4.7	14.4
Chemistry, total	427	499	503	517	579	582	625	661	605	605	21.2	28.6
Analytical	60	63	68	83	95	91	102	109	111	106	19.9	30.2
Inorganic	66	74	60	73	69	59	87	92	68	81	26.4	29.3
Medicinal/pharmaceutical ⁵	19	21	20	27	27	38	26	32	32	43	26.0	40.2
Nuclear	0	0	2	4	1	0	0	3	0	0	.0	.0
Organic	89	105	104	108	119	131	128	134	118	145	16.8	25.6
Physical	71	87	76	86	109	88	93	93	85	90	22.3	27.0
Polymer	12	15	13	24	12	22	23	28	30	25	14.8	22.7
Theoretical	9	9	14	7	16	16	17	10	14	11	18.0	22.9
Chemistry, general	73	91	128	76	107	112	126	135	119	69	23.5	29.9
Chemistry, other	28	34	18	29	24	25	23	25	28	35	29.8	41.7

See explanatory information, if any, and SOURCE at end of table.

**Table 2. Science and engineering (S&E) doctorates awarded to women,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Percent women	
											1988	1997
Physics, total	114	101	130	142	167	169	175	182	193	185	9.7	13.4
Acoustics	2	0	2	2	0	1	2	3	2	4	12.5	21.1
Chemical & atomic/ molecular ⁶	8	8	7	4	6	14	17	15	10	11	10.4	10.5
Electron ⁴	0	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	.0	-
Elementary particle	16	10	14	20	12	18	16	7	19	21	9.2	12.4
Fluids	0	1	1	0	1	2	1	0	4	0	.0	.0
Nuclear	6	8	5	7	12	8	9	12	9	11	6.8	10.5
Optics	6	7	5	13	9	14	14	13	20	16	9.2	13.0
Plasma & high-temperature ⁷	4	4	2	2	4	4	8	5	2	2	6.2	5.1
Polymer	0	1	3	3	1	5	4	3	12	7	.0	36.8
Solid state & low-temperature ⁸	35	23	35	42	53	42	53	57	54	50	13.9	15.3
Physics, general	25	19	33	31	42	46	30	41	39	31	9.2	12.6
Physics, other	12	20	23	18	27	15	21	26	22	32	9.6	15.8
Other physical sciences	10	2	8	6	5	4	3	5	3	8	30.3	40.0
Earth, atmospheric, and ocean sciences, total	135	148	141	179	188	160	183	170	172	204	19.4	23.7
Atmospheric sciences, total	11	10	14	16	27	18	26	23	22	24	10.7	16.3
Atmospheric dynamics	2	2	4	3	4	5	9	3	4	5	8.0	20.0
Atmospheric physics/ chemistry	0	2	1	2	5	2	5	8	7	9	.0	20.9
Meteorology	7	0	3	7	10	3	8	3	2	3	20.0	10.7
Atmospheric science/ meteorology, general	1	3	5	3	7	7	4	7	5	5	7.1	13.9
Atmospheric science/ meteorology, other	1	3	1	1	1	1	0	2	4	2	10.0	13.3
Geosciences, total	82	92	85	124	115	89	95	91	88	117	19.3	24.3
Applied geology ⁴	1	0	3	0	N/A	N/A	N/A	N/A	N/A	N/A	14.3	-
Geology	36	35	32	34	35	35	32	38	36	38	25.0	23.5
Geochemistry	7	13	9	19	16	13	10	10	10	15	15.2	30.0
Geomorphology/glacial geology	3	3	1	2	5	3	2	4	1	4	33.3	15.4
Geophysics/seismology	8	11	15	20	23	14	24	19	14	18	9.6	17.1
Hydrology/water resources	5	2	1	2	7	9	3	4	5	8	20.8	18.6
Mineralogy/petrology	3	5	4	15	6	1	6	4	11	6	15.8	33.3
Paleontology	3	4	2	7	2	5	2	3	4	11	12.5	47.8
Stratigraphy/sedimentation	8	6	5	8	10	5	4	1	3	7	26.7	30.4
Geological & related sciences, general	2	2	5	9	4	2	1	4	2	4	25.0	26.7
Geological & related sciences, other	6	11	8	8	7	2	11	4	2	6	19.4	35.3
Oceanography, total	26	26	31	26	29	35	38	28	39	37	23.9	26.2
Marine sciences	9	6	7	2	11	8	11	8	5	7	32.1	24.1
Oceanography	17	20	24	24	18	27	27	20	34	30	21.0	26.8
Other environmental sciences	16	20	11	13	17	18	24	28	23	26	27.6	28.3
Mathematical/computer sciences, total	177	263	268	316	325	402	373	451	370	404	14.0	20.2
Mathematics, total	121	155	158	199	205	264	236	265	231	260	16.2	23.4
Algebra	10	10	6	16	13	28	24	24	18	21	18.5	26.6
Analysis/functional analysis	15	20	15	21	18	23	16	18	15	13	19.7	12.6
Applied mathematics	17	28	34	27	44	43	39	47	52	54	12.0	22.4
Computing theory	3	1	1	3	0	3	2	2	2	1	25.0	7.1
Geometry	4	7	8	5	6	7	4	8	14	13	9.1	18.6
Logic	2	5	3	1	2	4	6	7	1	5	10.0	21.7
Mathematical statistics ⁹	31	38	31	56	46	57	50	54	47	46	20.4	25.3
Number theory	5	5	1	8	4	4	5	9	7	11	19.2	23.9
Operations research	3	4	2	4	6	9	9	5	4	5	10.3	25.0
Topology	3	8	11	18	16	9	11	8	5	14	11.1	22.6
Mathematics, general	20	17	32	31	37	56	54	64	45	41	14.9	28.7
Mathematics, other	8	12	14	9	13	21	16	19	21	36	24.2	27.9
Computer sciences, total	56	108	110	117	120	138	137	186	139	144	10.9	16.2
Computer science	39	69	85	96	91	123	118	160	116	127	8.8	15.6
Information science/systems	17	39	25	21	29	15	19	26	23	17	23.3	22.1

See explanatory information, if any, and SOURCE at end of table.

**Table 2. Science and engineering (S&E) doctorates awarded to women,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Percent women	
											1988	1997
Biological/agricultural sciences, total	1,691	1,769	1,861	1,982	2,064	2,278	2,357	2,446	2,697	2,718	33.0	40.7
Biological sciences, total	1,505	1,542	1,615	1,773	1,831	2,050	2,108	2,218	2,415	2,463	36.6	43.1
Bacteriology	2	2	4	5	5	6	11	6	8	1	28.6	7.7
Biochemistry	203	268	237	289	284	318	320	341	317	360	33.2	43.8
Biomedical sciences ¹⁰ .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	42	54	62	-	39.2
Biophysics	21	21	23	26	33	21	33	46	41	41	21.6	27.7
Biotechnology research ¹¹	N/A	N/A	N/A	N/A	N/A	4	2	2	1	3	-	27.3
Plant genetics	6	3	7	5	8	12	5	12	16	11	23.1	37.9
Plant pathology	9	8	12	13	10	15	11	10	13	8	30.0	24.2
Plant physiology	23	15	19	19	16	19	21	21	29	18	31.1	39.1
Botany, other	41	52	33	39	45	43	46	34	44	31	36.6	34.1
Anatomy	32	27	29	31	31	34	29	25	20	19	36.4	38.0
Biometrics/biostatistics	15	20	18	29	24	21	33	23	34	45	31.9	52.9
Cell biology	55	57	69	63	80	116	102	117	107	113	46.6	45.4
Developmental biology/ embryology ¹²	3	4	12	20	22	25	32	30	49	61	42.9	53.5
Ecology	47	36	52	60	65	67	70	64	84	105	30.3	42.0
Endocrinology	10	10	11	16	12	12	8	6	13	9	47.6	52.9
Entomology	26	23	26	35	35	28	28	27	36	40	19.5	32.8
Biological immunology ¹³	91	61	72	76	83	73	74	82	129	92	50.8	43.6
Microbiology	120	124	116	150	157	183	177	188	185	180	36.0	44.2
Molecular biology	130	153	152	182	194	237	268	265	291	329	35.7	42.8
Neuroscience	60	63	76	88	92	110	129	121	165	186	36.8	43.1
Nutritional sciences	89	91	88	70	95	99	102	92	98	91	70.1	74.0
Parasitology	8	5	4	7	8	7	9	7	12	10	40.0	58.8
Toxicology	30	39	36	30	33	43	50	50	60	80	27.8	44.4
Human/animal genetics	57	57	73	71	61	76	87	92	101	102	48.3	47.9
Human/animal pathology	43	41	32	46	41	45	45	38	52	42	38.4	39.6
Human/animal pharmacology	92	99	92	91	92	121	106	129	142	141	36.5	47.6
Human/animal physiology	89	105	98	107	82	100	106	103	107	82	39.6	36.4
Zoology, other	43	35	37	39	45	32	32	50	31	35	25.7	36.5
Biological sciences, general	97	77	140	113	115	113	117	148	120	80	37.9	41.5
Biological sciences, other	63	46	47	53	63	70	55	47	56	86	39.4	40.4
Agricultural sciences, total	186	227	246	209	233	228	249	228	282	255	18.3	26.4
Agronomy & crop science ¹⁴	19	20	21	11	23	19	17	13	17	10	13.5	13.2
Animal breeding/genetics	2	3	3	2	6	4	3	1	3	4	7.4	16.7
Animal nutrition	12	15	13	10	8	7	10	9	11	14	22.2	25.5
Dairy science	1	1	2	4	2	2	1	3	2	5	8.3	35.7
Poultry science	2	2	3	1	6	6	5	0	3	2	20.0	22.2
Animal sciences, other	13	25	11	20	21	19	25	19	26	13	15.1	22.0
Fisheries science & management ¹⁵	8	5	6	4	1	4	11	9	10	5	19.0	11.6
Wildlife/range management ¹⁶	8	10	6	8	7	17	13	8	22	12	20.5	25.0
Food sciences ¹⁷	3	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	18.8	-
Food engineering ¹⁷	1	1	2	2	2	2	0	0	3	3	16.7	27.3
Food sciences, other ¹⁷	36	53	54	46	60	57	69	54	69	77	30.3	44.8
Forestry science ¹⁸	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.3	-
Forest biology ¹⁸	3	3	8	3	8	7	6	5	4	1	14.3	4.5
Forest engineering ¹⁸	0	0	0	1	0	0	N/A	0	0	2	0	15.4
Forest management ¹⁸	2	2	1	4	1	0	2	6	2	4	11.1	19.0
Wood science & pulp/paper technology ¹⁸	0	0	0	2	2	3	6	6	3	2	.0	8.0
Conservation/renewable natural resources ¹⁸	0	1	3	3	1	4	6	5	3	7	.0	41.2
Forestry & related sciences, other ¹⁸	6	8	10	5	9	9	6	13	18	15	17.1	28.8
Horticulture science	16	19	27	19	16	15	14	22	22	16	26.2	36.4
Plant breeding/genetics	12	13	20	10	12	14	13	15	13	9	14.5	13.4
Plant pathology	12	24	25	26	20	15	20	9	27	26	26.1	40.6
Plant protection-pest management ¹⁹	0	0	1	0	N/A	N/A	N/A	N/A	N/A	N/A	.0	-
Plant sciences, other	3	4	4	4	6	9	9	3	3	6	13.0	31.6
Soil sciences ²⁰	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.6	-
Soil chemistry/ microbiology ²⁰	7	7	6	6	3	5	4	5	9	9	21.2	28.1
Soil sciences, other ²⁰	11	7	8	11	12	4	6	18	14	8	17.7	14.5
Agricultural sciences, general	3	2	0	1	2	2	0	3	0	1	33.3	12.5
Agricultural sciences, other	3	2	12	6	5	4	1	2	1	4	14.3	25.0

See explanatory information, if any, and SOURCE at end of table.

**Table 2. Science and engineering (S&E) doctorates awarded to women,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Percent women	
											1988	1997
Psychology, total	1,681	1,800	1,913	1,996	1,928	2,088	2,101	2,180	2,328	2,324	54.7	66.6
Clinical	612	710	785	848	810	873	842	870	919	896	55.9	71.1
Cognitive psychology & psycholinguistics ²¹	34	33	35	46	47	48	56	52	60	75	41.0	46.3
Comparative	4	1	3	5	2	3	7	1	2	3	57.1	50.0
Counseling	261	284	281	306	289	284	310	297	303	307	54.1	64.4
Developmental & child ²²	131	116	112	119	131	155	132	121	154	167	74.4	79.1
Human/indiv. & family dev ²³ .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	97	-	80.2
Educational	65	60	69	64	69	67	39	53	66	44	63.1	73.3
Experimental	61	70	49	64	73	68	71	83	68	67	45.2	47.9
Family & marriage counseling ¹⁰ .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	37	28	41	-	67.2
Industrial/organizational	54	49	53	76	64	73	69	89	99	103	45.8	56.0
Physiological/psychobiology ²⁴	45	33	28	21	25	50	52	35	41	42	52.9	54.5
Quantitative	5	6	3	2	5	11	8	9	7	10	41.7	58.8
Personality	8	17	10	4	8	12	12	9	11	12	44.4	48.0
Psychometrics	6	3	4	3	2	2	1	4	3	7	54.5	63.6
School	66	69	53	57	59	65	53	62	71	66	57.4	78.6
Social	75	68	92	86	78	67	100	84	111	115	53.6	64.2
Psychology, general	196	204	233	185	168	185	158	185	180	181	53.3	63.3
Psychology, other	58	77	103	110	98	125	191	189	205	91	46.0	71.7
Social sciences, total	1,125	1,135	1,111	1,313	1,299	1,422	1,443	1,467	1,461	1,566	34.8	38.7
Economics, total	198	198	200	217	219	246	249	279	263	266	19.6	23.2
Agricultural economics	31	25	27	38	28	31	20	42	37	35	19.9	25.9
Econometrics	4	2	3	5	2	7	4	4	8	4	14.8	13.8
Economics	163	171	170	174	189	208	225	233	218	227	19.8	23.1
Political science, total	164	201	170	211	235	246	282	266	305	289	25.9	30.1
International relations & affairs ²⁵	14	29	15	24	24	28	24	21	32	18	18.2	21.4
Political science/government	96	107	108	117	142	129	173	167	186	190	24.5	29.1
Public administration	29	37	22	32	30	41	47	43	37	29	31.5	30.5
Public policy analysis ²⁶	25	28	25	38	39	48	38	35	50	52	34.2	40.6
Sociology, total	249	232	218	246	250	255	283	294	276	331	53.2	55.6
Demography/population studies ²⁷	11	10	11	16	5	12	12	6	2	16	57.9	66.7
Sociology	238	222	207	230	245	243	271	288	274	315	53.0	55.2
Other social sciences, total	514	504	523	639	595	675	629	628	617	680	45.6	50.5
American studies	43	48	37	56	47	57	48	53	67	46	61.4	57.5
Anthropology	170	148	173	210	155	213	208	219	214	240	52.3	55.8
Archaeology	8	14	12	20	17	18	17	18	11	19	34.8	55.9
Area studies	5	5	9	5	11	11	17	12	9	5	31.3	50.0
Criminology	15	10	16	18	15	15	12	23	25	25	34.9	50.0
Geography	33	25	35	33	29	40	35	43	45	51	25.6	35.2
History/philosophy of science & technology ²⁸	10	9	9	11	8	16	10	18	10	13	45.5	38.2
Linguistics	83	106	90	112	133	118	134	102	113	135	50.0	55.6
Statistics	9	20	12	10	11	14	16	11	7	23	19.1	41.1
Urban affairs & studies ²⁹	31	23	21	22	31	44	43	37	38	29	36.0	31.9
Social sciences, general	13	9	9	17	20	13	9	23	15	9	46.4	45.0
Social sciences, other	94	87	100	125	118	116	80	69	63	85	55.0	55.2

See explanatory information, if any, and SOURCE at end of table.

**Table 2. Science and engineering (S&E) doctorates awarded to women,
by field of study and year of doctorate: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	Percent women	
											1988	1997
Non-S&E, total ³⁰	6,157	6,404	6,736	6,941	7,356	7,470	7,899	8,126	8,299	8,526	49.0	53.8
Health	549	629	592	668	710	777	843	843	861	916	62.2	65.7
Humanities ³¹	1,431	1,436	1,600	1,720	1,858	1,919	2,054	2,254	2,343	2,359	43.7	47.2
Education	3,514	3,610	3,752	3,748	3,976	3,921	4,089	4,092	4,179	4,079	55.2	62.8
Professional/other	663	729	792	805	812	853	913	937	916	1,172	32.3	39.4
Grand total, all fields	11,819	12,513	13,106	13,873	14,436	15,122	15,819	16,414	16,945	17,322	35.3	40.6

- 1 In 1993 this subfield was changed from "Polymer engineering" to "Polymer and plastics engineering."
- 2 In 1993 this subfield was changed from "Industrial engineering" to "Industrial and manufacturing engineering."
- 3 In 1993 this subfield was changed from "Ceramic engineering" to "Ceramic sciences engineering."
- 4 These subfields were deleted in 1991: "Naval architecture/marine engineering," "Electron physics," and "Applied geology."
- 5 In 1993 this subfield was changed from "Pharmaceutical chemistry" to "Medicinal and pharmaceutical chemistry."
- 6 In 1993 this subfield was changed from "Atomic/molecular physics" to "Chemical and atomic/molecular physics."
- 7 In 1993 this subfield was changed from "Plasma physics" to "Plasma and high-temperature physics."
- 8 In 1993 this subfield was changed from "Solid state physics" to "Solid state and low-temperature physics."
- 9 In 1993 this subfield was changed from "Math probability and statistics" to "Mathematical statistics."
- 10 These subfields were introduced in 1995: "Biomedical sciences" and "Family and marriage counseling."
- 11 "Biotechnology research" was introduced in 1993.
- 12 In 1990 this subfield was changed from "Embryology" to "Developmental biology/embryology."
- 13 In 1993 this subfield was changed from "Immunology" to "Biological immunology."
- 14 In 1993 this subfield was changed from "Agronomy" to "Agronomy and crop science."
- 15 In 1993 this subfield was changed from "Fisheries science" to "Fisheries science and management."
- 16 In 1988 this subfield was changed from "Wildlife management" to "Wildlife/range management."
- 17 In 1988 "Food sciences" was separated into "Food distribution," "Food engineering," and "Food sciences, other."
- 18 In 1988 "Forestry science" was separated into "Forest biology," "Forest engineering," "Forest management," "Wood science," "Renewable natural resources," and "Forestry and related sciences, other." In 1993 "Pulp and paper technology" was added to "Wood science," and "Conservation" was added to "Renewable natural resources." "Forest engineering" was deleted from the survey in 1994 and reintroduced in 1995.
- 19 "Plant protection-pest management" was deleted in 1991.
- 20 In 1988 "Soil sciences" was separated into "Soil chemistry/microbiology" and "Soil sciences, other."
- 21 In 1993 this subfield was changed from "Cognitive psychology" to "Cognitive psychology and psycholinguistics."
- 22 In 1993 this subfield was changed from "Developmental psychology" to "Developmental and child psychology."
- 23 "Human/individual & family development" was introduced in 1996.
- 24 In 1993 this subfield was changed from "Physiological psychology" to "Physiological psychology/psychobiology."
- 25 In 1993 this subfield was changed from "International relations" to "International relations and affairs."
- 26 In 1993 this subfield was changed from "Public policy studies" to "Public policy analysis."
- 27 In 1993 this subfield was changed from "Demography" to "Demography and population studies."
- 28 In 1993 this subfield was changed from "History of science" to "History and philosophy of science and technology."
- 29 In 1993 this subfield was changed from "Urban studies" to "Urban affairs and studies."
- 30 Non-S&E doctorates include those whose field of specialization is unknown.
- 31 Categories differ from those published by other Federal sponsors and the National Research Council in that linguistics, history of science, American studies, and archaeology are included not in humanities but in social science.

KEY: - = Percent not available as data were not collected that year.
N/A = Not available (i.e., the subfield was not identified separately in the questionnaire for that year)

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents										
Science and engineering, total	14,498	14,592	15,364	15,914	15,942	16,573	18,187	18,996	18,628	18,005
Engineering, total	2,146	2,229	2,346	2,474	2,520	2,697	3,053	3,342	3,383	3,281
Chemical	408	444	392	399	378	377	380	381	392	405
Civil	233	247	241	213	215	227	292	309	305	323
Electrical	503	539	599	686	719	795	899	971	926	927
Mechanical	327	325	368	359	426	434	538	563	588	531
Other engineering	675	674	746	817	782	864	944	1,118	1,172	1,095
Sciences, total	12,352	12,363	13,018	13,440	13,422	13,876	15,134	15,654	15,245	14,724
Physical sciences, total	2,258	2,131	2,341	2,300	2,357	2,330	2,789	2,841	2,568	2,473
Astronomy	104	82	96	86	106	111	112	141	149	157
Chemistry	1,451	1,383	1,497	1,461	1,441	1,400	1,616	1,624	1,461	1,426
Physics	681	654	725	739	790	806	1,044	1,059	948	875
Other physical sciences	22	12	23	14	20	13	17	17	10	15
Earth, atmospheric, & ocean sciences	520	547	535	618	541	504	613	594	558	587
Mathematics	386	428	422	518	507	590	657	771	646	616
Computer sciences	326	396	403	451	489	509	543	616	513	506
Biological sciences	3,322	3,300	3,380	3,525	3,568	3,752	4,088	4,329	4,365	4,203
Agricultural sciences	610	651	687	620	573	506	616	598	576	546
Psychology	2,729	2,737	2,992	3,018	2,986	3,161	3,136	3,184	3,226	2,976
Social sciences	2,201	2,173	2,258	2,390	2,401	2,524	2,692	2,721	2,793	2,817
Non-S&E, total	10,414	10,435	11,239	11,516	12,048	12,135	12,707	13,063	12,878	12,596
Health	692	756	756	839	855	939	1,050	1,045	1,016	1,011
Humanities ¹	2,759	2,716	3,082	3,194	3,440	3,512	3,766	4,055	4,045	4,151
Education	5,477	5,410	5,787	5,788	6,017	5,968	6,063	5,995	6,062	5,532
Professional/other	1,486	1,553	1,614	1,695	1,736	1,716	1,828	1,968	1,755	1,902
Grand total, all fields	24,912	25,027	26,603	27,430	27,990	28,708	30,894	32,059	31,506	30,601
U.S. citizens and permanent residents, American Indian/Alaskan Native										
Science and engineering, total	44	53	43	56	69	43	64	69	96	71
Engineering, total	4	7	4	6	11	2	6	10	14	12
Chemical	2	1	0	1	1	1	1	2	1	2
Civil	1	1	2	1	1	0	0	0	2	2
Electrical	0	0	0	2	4	0	1	2	2	4
Mechanical	1	0	0	1	1	0	0	2	3	4
Other engineering	0	5	2	1	4	1	4	4	6	0
Sciences, total	40	46	39	50	58	41	58	59	82	59
Physical sciences, total	6	10	3	10	12	5	6	9	6	9
Astronomy	0	2	0	0	0	1	0	0	0	1
Chemistry	5	5	3	9	6	2	4	7	4	6
Physics	1	3	0	1	6	2	2	2	2	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	6	1	3	1	4	1	0	2	2
Mathematics	2	0	1	0	2	1	2	2	1	1
Computer sciences	1	2	0	1	2	1	1	0	4	1
Biological sciences	6	7	4	10	13	7	16	15	21	9
Agricultural sciences	6	2	4	4	0	1	1	2	5	4
Psychology	7	11	19	13	15	15	12	14	18	17
Social sciences	10	8	7	9	13	7	19	17	25	16
Non-S&E, total	50	41	54	76	80	77	79	80	91	80
Health	5	3	1	5	5	6	6	9	4	5
Humanities ¹	4	7	6	10	18	10	20	18	18	16
Education	36	25	37	56	50	51	37	41	60	48
Professional/other	5	6	10	5	7	10	16	12	9	11
Grand total, all fields	94	94	97	132	149	120	143	149	187	151

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, Asian/Pacific Islander										
Science and engineering, total	916	986	1,009	1,180	1,345	1,610	2,989	3,671	3,091	2,527
Engineering, total	332	361	359	405	451	527	867	1,033	895	704
Chemical	67	77	51	50	54	62	96	101	81	73
Civil	27	36	28	30	34	41	69	91	89	74
Electrical	103	93	115	140	175	199	304	322	275	253
Mechanical	57	66	69	62	78	93	179	190	166	111
Other engineering	78	89	96	123	110	132	219	329	284	193
Sciences, total	584	625	650	775	894	1,083	2,122	2,638	2,196	1,823
Physical sciences, total	138	156	164	172	227	265	600	751	504	404
Astronomy	5	2	5	0	4	4	10	22	12	8
Chemistry	85	96	99	122	135	157	332	416	296	235
Physics	47	57	58	50	88	103	255	312	195	160
Other physical sciences	1	1	2	0	0	1	3	1	1	1
Earth, atmospheric, & ocean sciences	14	23	15	17	27	22	89	104	77	71
Mathematics	33	24	27	57	52	79	142	208	140	99
Computer sciences	44	52	48	66	86	77	117	137	111	106
Biological sciences	171	201	200	261	269	370	720	925	888	717
Agricultural sciences	30	23	32	24	37	29	72	78	81	63
Psychology	47	55	53	59	59	73	109	122	124	128
Social sciences	107	91	111	119	137	168	273	313	271	235
Non-S&E, total	319	282	297	351	419	407	557	638	606	613
Health	30	22	39	44	52	45	94	94	89	86
Humanities ¹	64	79	62	81	99	108	151	193	191	173
Education	130	102	104	130	144	144	173	177	185	176
Professional/other	95	79	92	96	124	110	139	174	141	178
Grand total, all fields	1,235	1,268	1,306	1,531	1,764	2,017	3,546	4,309	3,697	3,140
U.S. citizens and permanent residents, black										
Science and engineering, total	361	367	374	464	408	469	500	560	576	607
Engineering, total	31	33	40	55	49	50	54	71	74	97
Chemical	7	5	10	8	13	6	8	3	12	16
Civil	1	5	1	12	3	5	8	11	8	10
Electrical	7	9	8	16	17	15	17	24	22	31
Mechanical	1	5	5	3	5	3	7	14	10	12
Other engineering	15	9	16	16	11	21	14	19	22	28
Sciences, total	330	334	334	409	359	419	446	489	502	510
Physical sciences, total	34	31	30	32	25	41	46	43	60	50
Astronomy	0	0	1	0	1	2	0	1	0	2
Chemistry	22	26	24	23	17	31	34	33	45	33
Physics	12	5	5	9	6	7	11	9	15	15
Other physical sciences	0	0	0	0	1	1	1	0	0	0
Earth, atmospheric, & ocean sciences	3	4	3	3	6	4	6	3	4	9
Mathematics	4	8	4	11	4	8	11	5	8	7
Computer sciences	2	1	1	8	5	6	10	11	12	4
Biological sciences	48	57	51	64	62	75	79	108	98	108
Agricultural sciences	20	14	15	17	14	16	22	17	25	24
Psychology	105	97	115	130	106	119	124	151	154	152
Social sciences	114	122	115	144	137	150	148	151	141	156
Non-S&E, total	609	596	676	702	708	811	779	917	881	869
Health	32	29	32	40	38	59	46	60	49	55
Humanities ¹	76	71	72	92	90	98	106	114	119	139
Education	417	432	496	472	501	557	521	629	609	553
Professional/other	84	64	76	98	79	97	106	114	104	122
Grand total, all fields	970	963	1,050	1,166	1,116	1,280	1,279	1,477	1,457	1,476

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, Hispanic										
Science and engineering, total	397	382	468	492	513	542	548	571	623	645
Engineering, total	63	47	54	60	71	66	66	77	98	95
Chemical	5	9	8	11	16	10	7	13	19	7
Civil	13	8	9	5	7	12	14	11	6	11
Electrical	14	14	13	15	17	17	21	15	26	26
Mechanical	7	3	5	9	11	5	8	8	13	15
Other engineering	24	13	19	20	20	22	16	30	34	36
Sciences, total	334	335	414	432	442	476	482	494	525	550
Physical sciences, total	63	59	72	65	72	79	90	73	66	64
Astronomy	2	2	2	1	4	2	2	4	2	3
Chemistry	48	43	57	46	42	51	59	43	35	39
Physics	13	14	13	18	26	26	29	26	29	22
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	7	9	13	16	16	13	8	13	19	16
Mathematics	4	11	10	9	12	16	13	15	10	18
Computer sciences	2	4	5	12	8	7	7	6	16	16
Biological sciences	76	71	89	95	102	114	131	127	131	145
Agricultural sciences	21	18	23	15	18	20	25	21	13	26
Psychology	93	93	109	122	133	131	133	145	173	169
Social sciences	68	70	93	98	81	96	75	94	97	96
Non-S&E, total	296	312	369	375	396	431	482	490	482	536
Health	13	11	17	16	13	24	25	30	38	31
Humanities ¹	102	100	127	136	129	145	168	153	174	200
Education	158	171	190	189	214	222	241	258	217	253
Professional/other	23	30	35	34	40	40	48	49	53	52
Grand total, all fields	693	694	837	867	909	973	1,030	1,061	1,105	1,181
U.S. citizens and permanent residents, Puerto Rican										
Science and engineering, total	96	93	115	99	120	112	131	137	142	173
Engineering, total	13	7	6	9	13	10	10	13	22	23
Chemical	0	1	2	2	3	2	2	4	4	1
Civil	6	1	1	1	1	1	1	1	1	5
Electrical	2	1	2	0	3	5	3	3	4	4
Mechanical	1	3	0	2	1	1	1	1	3	6
Other engineering	4	1	1	4	5	1	3	4	10	7
Sciences, total	83	86	109	90	107	102	121	124	120	150
Physical sciences, total	23	20	24	17	20	17	26	21	12	20
Astronomy	0	1	1	0	1	0	0	1	0	0
Chemistry	19	16	20	14	14	14	19	17	9	13
Physics	4	3	3	3	5	3	7	3	3	7
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	5	0	3	1	0	2	3	5
Mathematics	1	4	2	0	2	1	1	1	3	4
Computer sciences	0	0	2	3	1	1	4	0	5	6
Biological sciences	20	18	24	23	27	27	28	30	32	37
Agricultural sciences	2	7	5	0	3	10	5	3	4	4
Psychology	26	21	26	20	35	24	43	44	48	58
Social sciences	11	16	21	27	16	21	14	23	13	16
Non-S&E, total	78	83	95	92	109	120	126	132	109	139
Health	4	4	6	3	4	3	6	12	7	9
Humanities ¹	23	22	28	30	22	36	38	30	38	49
Education	44	52	56	52	76	70	68	69	51	70
Professional/other	7	5	5	7	7	11	14	21	13	11
Grand total, all fields	174	176	210	191	229	232	257	269	251	312

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, Mexican American										
Science and engineering, total	94	95	104	126	120	122	145	150	149	157
Engineering, total	11	14	13	14	10	12	15	19	28	17
Chemical	0	4	2	4	1	1	1	3	4	3
Civil	0	1	2	2	2	0	2	7	2	1
Electrical	2	3	4	3	3	2	4	3	9	5
Mechanical	1	0	3	3	2	0	2	2	4	3
Other engineering	8	6	2	2	2	9	6	4	9	5
Sciences, total	83	81	91	112	110	110	130	131	121	140
Physical sciences, total	12	11	11	15	9	12	24	13	23	15
Astronomy	1	0	0	0	0	0	1	1	1	0
Chemistry	10	10	11	12	6	8	19	8	15	9
Physics	1	1	0	3	3	4	4	4	7	6
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	4	2	3	4	7	2	4	4	5	4
Mathematics	0	2	3	3	4	4	4	6	2	3
Computer sciences	0	0	0	0	3	1	2	3	1	2
Biological sciences	14	12	22	26	24	24	30	28	28	42
Agricultural sciences	3	6	8	5	5	4	6	4	2	2
Psychology	28	31	25	35	37	42	40	48	38	47
Social sciences	22	17	19	24	21	21	20	25	22	25
Non-S&E, total	96	83	86	106	99	130	163	140	144	142
Health	3	5	7	3	5	8	5	8	6	7
Humanities ¹	21	22	19	27	24	35	42	34	41	35
Education	63	50	50	67	58	74	102	93	79	87
Professional/other	9	6	10	9	12	13	14	5	18	13
Grand total, all fields	190	178	190	232	219	252	308	290	293	299
U.S. citizens and permanent residents, other Hispanic										
Science and engineering, total	207	194	249	267	273	308	272	284	332	315
Engineering, total	39	26	35	37	48	44	41	45	48	55
Chemical	5	4	4	5	12	7	4	6	11	3
Civil	7	6	6	2	4	11	11	3	3	5
Electrical	10	10	7	12	11	10	14	9	13	17
Mechanical	5	0	2	4	8	4	5	5	6	6
Other engineering	12	6	16	14	13	12	7	22	15	24
Sciences, total	168	168	214	230	225	264	231	239	284	260
Physical sciences, total	28	28	37	33	43	50	40	39	31	29
Astronomy	1	1	1	1	3	2	1	2	1	3
Chemistry	19	17	26	20	22	29	21	18	11	17
Physics	8	10	10	12	18	19	18	19	19	9
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	3	7	5	12	6	10	4	7	11	7
Mathematics	3	5	5	6	6	11	8	8	5	11
Computer sciences	2	4	3	9	4	5	1	3	10	8
Biological sciences	42	41	43	46	51	63	73	69	71	66
Agricultural sciences	16	5	10	10	10	6	14	14	7	20
Psychology	39	41	58	67	61	65	50	53	87	64
Social sciences	35	37	53	47	44	54	41	46	62	55
Non-S&E, total	122	146	188	177	188	181	193	218	229	255
Health	6	2	4	10	4	13	14	10	25	15
Humanities ¹	58	56	80	79	83	74	88	89	95	116
Education	51	69	84	70	80	78	71	96	87	96
Professional/other	7	19	20	18	21	16	20	23	22	28
Grand total, all fields	329	340	437	444	461	489	465	502	561	570

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, white										
Science and engineering, total	12,455	12,501	13,170	13,323	13,326	13,737	13,889	13,902	13,999	13,623
Engineering, total	1,655	1,726	1,840	1,837	1,880	2,025	2,020	2,090	2,260	2,262
Chemical	317	345	318	322	284	295	259	256	274	291
Civil	183	191	196	159	166	168	199	194	199	215
Electrical	363	405	450	478	487	553	548	588	588	575
Mechanical	253	241	286	266	326	328	337	338	392	373
Other engineering	539	544	590	612	617	681	677	714	807	808
Sciences, total	10,800	10,775	11,330	11,486	11,446	11,712	11,869	11,812	11,739	11,361
Physical sciences, total	1,948	1,828	2,008	1,968	1,973	1,911	2,025	1,922	1,888	1,866
Astronomy	93	74	86	83	95	100	97	111	131	131
Chemistry	1,258	1,188	1,284	1,239	1,219	1,145	1,179	1,111	1,063	1,071
Physics	577	555	618	633	641	656	736	686	685	650
Other physical sciences	20	11	20	13	18	10	13	14	9	14
Earth, atmospheric, & ocean sciences	480	498	494	557	485	455	504	464	449	470
Mathematics	332	369	372	419	425	476	479	535	478	470
Computer sciences	265	319	339	355	378	410	401	453	356	357
Biological sciences	2,965	2,904	2,975	3,041	3,068	3,146	3,107	3,119	3,171	3,120
Agricultural sciences	518	570	601	545	493	438	487	473	444	410
Psychology	2,445	2,453	2,648	2,652	2,636	2,807	2,730	2,727	2,741	2,464
Social sciences	1,847	1,834	1,893	1,949	1,988	2,069	2,136	2,119	2,212	2,204
Non-S&E, total	9,005	9,069	9,708	9,862	10,299	10,315	10,705	10,817	10,686	10,166
Health	606	684	662	720	735	800	867	835	822	817
Humanities ¹	2,471	2,399	2,766	2,821	3,061	3,109	3,283	3,523	3,494	3,491
Education	4,668	4,634	4,900	4,889	5,051	4,965	5,044	4,853	4,940	4,417
Professional/other	1,260	1,352	1,380	1,432	1,452	1,441	1,511	1,606	1,430	1,441
Grand total, all fields	21,460	21,570	22,878	23,185	23,625	24,052	24,594	24,719	24,685	23,789
U.S. citizens and permanent residents, male										
Science and engineering, total	9,887	9,671	10,182	10,317	10,365	10,549	11,693	12,083	11,668	11,191
Engineering, total	1,950	1,954	2,070	2,158	2,192	2,349	2,605	2,822	2,860	2,772
Chemical	355	375	330	339	296	313	302	293	294	328
Civil	218	207	207	188	192	195	237	257	258	265
Electrical	470	503	552	638	652	715	811	851	821	820
Mechanical	310	306	344	322	401	398	484	514	528	477
Other engineering	597	563	637	671	651	728	771	907	959	882
Sciences, total	7,937	7,717	8,112	8,159	8,173	8,200	9,088	9,261	8,808	8,419
Physical sciences, total	1,848	1,694	1,871	1,846	1,843	1,809	2,164	2,133	1,958	1,892
Astronomy	90	69	78	79	91	88	91	116	114	132
Chemistry	1,123	1,018	1,114	1,093	1,040	999	1,152	1,087	1,022	999
Physics	621	596	663	663	696	712	907	916	814	752
Other physical sciences	14	11	16	11	16	10	14	14	8	9
Earth, atmospheric, & ocean sciences	408	427	417	461	394	384	469	450	428	431
Mathematics	316	327	329	406	390	426	506	588	501	444
Computer sciences	280	312	313	357	406	400	449	473	422	408
Biological sciences	2,070	2,024	2,068	2,135	2,130	2,168	2,345	2,469	2,424	2,308
Agricultural sciences	482	487	528	483	423	372	456	463	401	389
Psychology	1,217	1,174	1,220	1,128	1,206	1,223	1,169	1,128	1,043	971
Social sciences	1,316	1,272	1,366	1,343	1,381	1,418	1,530	1,557	1,631	1,576
Non-S&E, total	5,001	4,864	5,173	5,295	5,447	5,439	5,679	5,793	5,515	5,464
Health	216	225	239	252	226	260	328	325	292	285
Humanities ¹	1,515	1,473	1,660	1,703	1,832	1,815	1,978	2,077	2,000	2,150
Education	2,337	2,221	2,358	2,347	2,347	2,378	2,307	2,243	2,238	1,967
Professional/other	933	945	916	993	1,042	986	1,066	1,148	985	1,062
Grand total, all fields	14,888	14,535	15,355	15,612	15,812	15,988	17,372	17,876	17,183	16,655

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, male, American Indian/Alaskan Native										
Science and engineering, total	29	33	25	37	42	25	40	44	62	40
Engineering, total	4	5	4	4	8	2	4	10	12	10
Chemical	2	1	0	0	1	1	1	2	1	1
Civil	1	0	2	1	0	0	0	0	1	1
Electrical	0	0	0	1	3	0	1	2	1	4
Mechanical	1	0	0	1	1	0	0	2	3	4
Other engineering	0	4	2	1	3	1	2	4	6	0
Sciences, total	25	28	21	33	34	23	36	34	50	30
Physical sciences, total	5	10	3	8	10	3	5	6	5	9
Astronomy	0	2	0	0	0	1	0	0	0	1
Chemistry	5	5	3	7	4	1	4	4	3	6
Physics	0	3	0	1	6	1	1	2	2	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	4	0	2	1	4	1	0	2	1
Mathematics	2	0	1	0	1	1	2	1	1	1
Computer sciences	1	1	0	1	2	0	0	0	2	0
Biological sciences	4	4	3	6	8	5	11	10	12	5
Agricultural sciences	4	1	4	4	0	1	1	2	2	4
Psychology	3	3	6	5	6	6	5	6	9	6
Social sciences	5	5	4	7	6	3	11	9	17	4
Non-S&E, total	23	16	27	37	40	35	31	38	40	30
Health	1	0	1	3	3	0	1	2	1	2
Humanities ¹	0	2	4	3	12	7	12	10	9	6
Education	18	10	16	29	20	21	10	17	22	17
Professional/other	4	4	6	2	5	7	8	9	8	5
Grand total, all fields	52	49	52	74	82	60	71	82	102	70
U.S. citizens and permanent residents, male, Asian/Pacific Islander										
Science and engineering, total	694	745	757	806	927	1,079	2,169	2,557	2,108	1,631
Engineering, total	314	327	326	356	390	466	748	863	762	586
Chemical	61	66	40	41	38	55	71	76	63	61
Civil	26	33	25	26	32	39	65	77	75	60
Electrical	97	85	109	135	154	174	273	276	246	214
Mechanical	57	65	66	59	74	90	155	167	149	95
Other engineering	73	78	86	95	92	108	184	267	229	156
Sciences, total	380	418	431	450	537	613	1,421	1,694	1,346	1,045
Physical sciences, total	96	120	122	124	147	168	422	540	359	271
Astronomy	4	0	3	0	2	2	9	18	8	7
Chemistry	57	73	70	86	79	85	203	270	188	142
Physics	34	46	47	38	66	80	208	251	162	122
Other physical sciences	1	1	2	0	0	1	2	1	1	0
Earth, atmospheric, & ocean sciences	10	19	14	11	19	14	72	76	65	51
Mathematics	22	21	20	39	33	43	116	158	104	71
Computer sciences	38	42	41	51	74	58	101	107	95	80
Biological sciences	98	112	113	132	136	198	451	515	480	368
Agricultural sciences	23	17	26	16	25	20	52	62	51	45
Psychology	20	28	22	15	20	22	32	44	31	31
Social sciences	73	59	73	62	83	90	175	192	161	128
Non-S&E, total	176	160	152	166	209	208	300	312	290	270
Health	18	13	17	21	22	22	48	52	47	36
Humanities ¹	31	42	28	39	48	42	84	83	86	69
Education	59	43	39	45	48	58	66	59	71	49
Professional/other	68	62	68	61	91	86	102	118	86	116
Grand total, all fields	870	905	909	972	1,136	1,287	2,469	2,869	2,398	1,901

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, male, black										
Science and engineering, total	224	214	225	270	238	261	284	290	323	327
Engineering, total	27	30	34	47	43	39	41	56	55	74
Chemical	6	4	8	7	12	3	4	2	7	10
Civil	1	5	1	10	3	3	6	8	7	10
Electrical	5	9	7	14	15	13	14	20	17	27
Mechanical	1	5	5	2	5	3	6	13	7	11
Other engineering	14	7	13	14	8	17	11	13	17	16
Sciences, total	197	184	191	223	195	222	243	234	268	253
Physical sciences, total	26	24	23	27	19	31	33	25	47	40
Astronomy	0	0	1	0	0	2	0	1	0	1
Chemistry	15	19	17	18	12	22	25	16	35	25
Physics	11	5	5	9	6	7	7	8	12	14
Other physical sciences	0	0	0	0	1	0	1	0	0	0
Earth, atmospheric, & ocean sciences	3	3	1	2	5	4	5	3	2	7
Mathematics	4	5	3	7	4	7	8	4	6	5
Computer sciences	2	0	1	4	4	2	8	7	9	3
Biological sciences	25	33	29	32	38	43	34	65	58	51
Agricultural sciences	15	13	14	16	10	12	16	11	25	19
Psychology	47	36	43	44	28	44	46	39	39	42
Social sciences	75	70	77	91	87	79	93	80	82	86
Non-S&E, total	219	239	254	282	281	318	269	325	318	309
Health	8	9	14	17	14	18	11	18	13	15
Humanities ¹	40	35	37	44	47	56	51	53	53	66
Education	140	162	169	179	174	201	161	204	203	175
Professional/other	31	33	34	42	46	43	46	50	49	53
Grand total, all fields	443	453	479	552	519	579	553	615	641	636
U.S. citizens and permanent residents, male, Hispanic										
Science and engineering, total	248	227	290	306	308	320	318	339	351	383
Engineering, total	57	39	45	50	56	54	60	66	84	72
Chemical	5	5	7	7	12	7	7	11	13	4
Civil	12	8	7	3	6	10	11	10	6	10
Electrical	12	13	12	15	14	14	21	14	23	20
Mechanical	6	2	4	7	9	5	7	8	13	12
Other engineering	22	11	15	18	15	18	14	23	29	26
Sciences, total	191	188	245	256	252	266	258	273	267	311
Physical sciences, total	47	41	46	54	52	59	69	52	54	51
Astronomy	2	2	2	1	3	2	2	2	1	2
Chemistry	35	26	33	37	26	33	43	29	28	29
Physics	10	13	11	16	23	24	24	21	25	20
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	3	6	9	14	10	11	6	7	13	12
Mathematics	4	7	6	5	9	14	10	11	10	12
Computer sciences	2	1	4	11	7	6	7	2	9	14
Biological sciences	49	50	56	56	59	57	69	80	65	83
Agricultural sciences	19	15	17	12	14	15	13	16	9	19
Psychology	38	30	52	52	55	45	43	48	53	62
Social sciences	29	38	55	52	46	59	41	57	54	58
Non-S&E, total	137	149	159	152	174	197	200	200	213	233
Health	7	4	2	7	4	8	7	15	16	8
Humanities ¹	47	51	52	64	66	72	79	71	84	104
Education	66	73	85	65	82	94	82	91	87	92
Professional/other	17	21	20	16	22	23	32	23	26	29
Grand total, all fields	385	376	449	458	482	517	518	539	564	616

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, male, Puerto Rican										
Science and engineering, total	58	54	67	52	71	70	72	74	74	100
Engineering, total	11	6	4	7	10	8	10	11	17	19
Chemical	0	1	2	1	3	2	2	3	2	1
Civil	5	1	1	1	1	0	1	1	1	5
Electrical	2	1	1	0	2	4	3	3	4	3
Mechanical	1	2	0	2	0	1	1	1	3	6
Other engineering	3	1	0	3	4	1	3	3	7	4
Sciences, total	47	48	63	45	61	62	62	63	57	81
Physical sciences, total	16	16	14	11	14	12	19	12	8	18
Astronomy	0	1	1	0	1	0	0	0	0	0
Chemistry	13	12	10	9	9	9	13	9	6	11
Physics	3	3	3	2	4	3	6	3	2	7
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	4	0	3	1	0	1	3	4
Mathematics	1	1	2	0	1	1	1	0	3	3
Computer sciences	0	0	2	3	1	0	4	0	4	6
Biological sciences	10	14	14	12	16	16	14	21	14	21
Agricultural sciences	2	5	4	0	3	7	2	3	3	3
Psychology	12	5	11	6	16	13	13	13	15	21
Social sciences	6	7	12	13	7	12	9	13	7	5
Non-S&E, total	30	32	37	32	39	51	51	46	40	54
Health	2	1	0	2	3	0	2	2	2	3
Humanities ¹	9	10	8	11	10	18	16	14	16	26
Education	15	17	26	16	23	25	23	19	17	20
Professional/other	4	4	3	3	3	8	10	6	5	5
Grand total, all fields	88	86	104	84	110	121	123	120	114	154
U.S. citizens and permanent residents, male, Mexican American										
Science and engineering, total	59	57	67	84	79	73	87	89	95	89
Engineering, total	11	9	11	12	10	10	13	18	25	10
Chemical	0	1	2	3	1	1	1	2	3	2
Civil	0	1	1	2	2	0	2	7	2	0
Electrical	2	2	4	3	3	2	4	3	8	2
Mechanical	1	0	2	2	2	0	2	2	4	3
Other engineering	8	5	2	2	2	7	4	4	8	3
Sciences, total	48	48	56	72	69	63	74	71	70	79
Physical sciences, total	11	9	8	12	7	9	20	9	20	13
Astronomy	1	0	0	0	0	0	1	0	1	0
Chemistry	9	8	8	10	4	6	16	6	13	7
Physics	1	1	0	2	3	3	3	3	6	6
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	2	2	4	5	2	4	3	3	3
Mathematics	0	2	1	1	4	3	3	4	2	2
Computer sciences	0	0	0	0	3	1	2	1	1	2
Biological sciences	12	9	15	19	11	13	17	17	16	21
Agricultural sciences	1	6	7	4	4	3	4	3	1	2
Psychology	9	10	11	20	19	16	17	15	18	19
Social sciences	13	10	12	12	16	16	7	19	9	17
Non-S&E, total	54	46	51	48	46	59	74	70	71	73
Health	2	3	1	0	0	3	2	3	2	0
Humanities ¹	12	12	11	14	14	19	23	21	21	22
Education	33	26	31	28	26	30	38	42	38	43
Professional/other	7	5	8	6	6	7	11	4	10	8
Grand total, all fields	113	103	118	132	125	132	161	159	166	162

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, male, other Hispanic										
Science and engineering, total	131	116	156	170	158	177	159	176	182	194
Engineering, total	35	24	30	31	36	36	37	37	42	43
Chemical	5	3	3	3	8	4	4	6	8	1
Civil	7	6	5	0	3	10	8	2	3	5
Electrical	8	10	7	12	9	8	14	8	11	15
Mechanical	4	0	2	3	7	4	4	5	6	3
Other engineering	11	5	13	13	9	10	7	16	14	19
Sciences, total	96	92	126	139	122	141	122	139	140	151
Physical sciences, total	20	16	24	31	31	38	30	31	26	20
Astronomy	1	1	1	1	2	2	1	2	0	2
Chemistry	13	6	15	18	13	18	14	14	9	11
Physics	6	9	8	12	16	18	15	15	17	7
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	4	3	10	2	8	2	3	7	5
Mathematics	3	4	3	4	4	10	6	7	5	7
Computer sciences	2	1	2	8	3	5	1	1	4	6
Biological sciences	27	27	27	25	32	28	38	42	35	41
Agricultural sciences	16	4	6	8	7	5	7	10	5	14
Psychology	17	15	30	26	20	16	13	20	20	22
Social sciences	10	21	31	27	23	31	25	25	38	36
Non-S&E, total	53	71	71	72	89	87	75	84	102	106
Health	3	0	1	5	1	5	3	5	12	5
Humanities ¹	26	29	33	39	42	35	40	36	47	56
Education	18	30	28	21	33	39	21	30	32	29
Professional/other	6	12	9	7	13	8	11	13	11	16
Grand total, all fields	184	187	227	242	247	264	234	260	284	300
U.S. citizens and permanent residents, male, white										
Science and engineering, total	8,427	8,213	8,648	8,584	8,623	8,725	8,731	8,680	8,646	8,443
Engineering, total	1,492	1,502	1,614	1,602	1,640	1,764	1,715	1,770	1,913	1,931
Chemical	272	293	270	277	225	244	211	196	205	239
Civil	171	157	167	143	147	143	153	160	168	175
Electrical	341	378	411	444	447	504	494	522	521	520
Mechanical	237	224	267	236	307	296	311	313	353	340
Other engineering	471	450	499	502	514	577	546	579	666	657
Sciences, total	6,935	6,711	7,034	6,982	6,983	6,961	7,016	6,910	6,733	6,512
Physical sciences, total	1,609	1,454	1,623	1,585	1,574	1,523	1,617	1,475	1,457	1,459
Astronomy	81	63	70	77	84	79	78	92	101	110
Chemistry	981	872	969	926	901	846	872	760	755	769
Physics	535	509	570	572	575	590	656	612	594	571
Other physical sciences	12	10	14	10	14	8	11	11	7	9
Earth, atmospheric, & ocean sciences	380	388	385	415	353	345	381	356	340	347
Mathematics	273	281	293	335	332	352	361	409	373	339
Computer sciences	225	252	259	282	309	327	326	349	295	292
Biological sciences	1,851	1,784	1,821	1,871	1,847	1,835	1,758	1,772	1,770	1,739
Agricultural sciences	408	421	455	422	364	323	367	369	307	290
Psychology	1,094	1,065	1,075	991	1,078	1,096	1,029	982	905	812
Social sciences	1,095	1,066	1,123	1,081	1,126	1,160	1,177	1,198	1,286	1,234
Non-S&E, total	4,368	4,215	4,512	4,569	4,656	4,623	4,827	4,854	4,582	4,443
Health	179	195	203	199	177	208	258	234	211	217
Humanities ¹	1,368	1,302	1,505	1,516	1,629	1,606	1,727	1,823	1,740	1,830
Education	2,023	1,911	2,029	2,002	1,997	1,992	1,968	1,858	1,830	1,597
Professional/other	798	807	775	852	853	817	874	939	801	799
Grand total, all fields	12,795	12,428	13,160	13,153	13,279	13,348	13,558	13,534	13,228	12,886

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, female										
Science and engineering, total	4,611	4,921	5,182	5,597	5,577	6,024	6,494	6,913	6,960	6,814
Engineering, total	196	275	276	316	328	348	448	520	523	509
Chemical	53	69	62	60	82	64	78	88	98	77
Civil	15	40	34	25	23	32	55	52	47	58
Electrical	33	36	47	48	67	80	88	120	105	107
Mechanical	17	19	24	37	25	36	54	49	60	54
Other engineering	78	111	109	146	131	136	173	211	213	213
Sciences, total	4,415	4,646	4,906	5,281	5,249	5,676	6,046	6,393	6,437	6,305
Physical sciences, total	410	437	470	454	514	521	625	708	610	581
Astronomy	14	13	18	7	15	23	21	25	35	25
Chemistry	328	365	383	368	401	401	464	537	439	427
Physics	60	58	62	76	94	94	137	143	134	123
Other physical sciences	8	1	7	3	4	3	3	3	2	6
Earth, atmospheric, & ocean sciences	112	120	118	157	147	120	144	144	130	156
Mathematics	70	101	93	112	117	164	151	183	145	172
Computer sciences	46	84	90	94	83	109	94	143	91	98
Biological sciences	1,252	1,276	1,312	1,390	1,438	1,584	1,743	1,860	1,941	1,895
Agricultural sciences	128	164	159	137	150	134	160	135	175	157
Psychology	1,512	1,563	1,772	1,890	1,780	1,938	1,967	2,056	2,183	2,005
Social sciences	885	901	892	1,047	1,020	1,106	1,162	1,164	1,162	1,241
Non-S&E, total	5,413	5,571	6,066	6,221	6,601	6,696	7,028	7,270	7,363	7,132
Health	476	531	517	587	629	679	722	720	724	726
Humanities ¹	1,244	1,243	1,422	1,491	1,608	1,697	1,788	1,978	2,045	2,001
Education	3,140	3,189	3,429	3,441	3,670	3,590	3,756	3,752	3,824	3,565
Professional/other	553	608	698	702	694	730	762	820	770	840
Grand total, all fields	10,024	10,492	11,248	11,818	12,178	12,720	13,522	14,183	14,323	13,946
U.S. citizens and permanent residents, female, American Indian/Alaskan Native										
Science and engineering, total	15	20	18	19	27	18	24	25	34	31
Engineering, total	0	2	0	2	3	0	2	0	2	2
Chemical	0	0	0	1	0	0	0	0	0	1
Civil	0	1	0	0	1	0	0	0	1	1
Electrical	0	0	0	1	1	0	0	0	1	0
Mechanical	0	0	0	0	0	0	0	0	0	0
Other engineering	0	1	0	0	1	0	2	0	0	0
Sciences, total	15	18	18	17	24	18	22	25	32	29
Physical sciences, total	1	0	0	2	2	2	1	3	1	0
Astronomy	0	0	0	0	0	0	0	0	0	0
Chemistry	0	0	0	2	2	1	0	3	1	0
Physics	1	0	0	0	0	1	1	0	0	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	2	1	1	0	0	0	0	0	1
Mathematics	0	0	0	0	1	0	0	1	0	0
Computer sciences	0	1	0	0	0	1	1	0	2	1
Biological sciences	2	3	1	4	5	2	5	5	9	4
Agricultural sciences	2	1	0	0	0	0	0	0	3	0
Psychology	4	8	13	8	9	9	7	8	9	11
Social sciences	5	3	3	2	7	4	8	8	8	12
Non-S&E, total	27	25	27	39	40	42	48	42	51	50
Health	4	3	0	2	2	6	5	7	3	3
Humanities ¹	4	5	2	7	6	3	8	8	9	10
Education	18	15	21	27	30	30	27	24	38	31
Professional/other	1	2	4	3	2	3	8	3	1	6
Grand total, all fields	42	45	45	58	67	60	72	67	85	81

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, female, Asian/Pacific Islander										
Science and engineering, total	222	241	252	374	418	531	820	1,114	983	896
Engineering, total	18	34	33	49	61	61	119	170	133	118
Chemical	6	11	11	9	16	7	25	25	18	12
Civil	1	3	3	4	2	4	14	14	14	14
Electrical	6	8	6	5	21	25	31	46	29	39
Mechanical	0	1	3	3	4	3	24	23	17	16
Other engineering	5	11	10	28	18	24	35	62	55	37
Sciences, total	204	207	219	325	357	470	701	944	850	778
Physical sciences, total	42	36	42	48	80	97	178	211	145	133
Astronomy	1	2	2	0	2	2	1	4	4	1
Chemistry	28	23	29	36	56	72	129	146	108	93
Physics	13	11	11	12	22	23	47	61	33	38
Other physical sciences	0	0	0	0	0	0	1	0	0	1
Earth, atmospheric, & ocean sciences	4	4	1	6	8	8	17	28	12	20
Mathematics	11	3	7	18	19	36	26	50	36	28
Computer sciences	6	10	7	15	12	19	16	30	16	26
Biological sciences	73	89	87	129	133	172	269	410	408	349
Agricultural sciences	7	6	6	8	12	9	20	16	30	18
Psychology	27	27	31	44	39	51	77	78	93	97
Social sciences	34	32	38	57	54	78	98	121	110	107
Non-S&E, total	143	122	145	185	210	199	257	326	316	343
Health	12	9	22	23	30	23	46	42	50	50
Humanities ¹	33	37	34	42	51	66	67	110	105	104
Education	71	59	65	85	96	86	107	118	114	127
Professional/other	27	17	24	35	33	24	37	56	55	62
Grand total, all fields	365	363	397	559	628	730	1,077	1,440	1,299	1,239
U.S. citizens and permanent residents, female, black										
Science and engineering, total	137	153	149	194	170	208	216	270	253	280
Engineering, total	4	3	6	8	6	11	13	15	19	23
Chemical	1	1	2	1	1	3	4	1	5	6
Civil	0	0	0	2	0	2	2	3	1	0
Electrical	2	0	1	2	2	2	3	4	5	4
Mechanical	0	0	0	1	0	0	1	1	3	1
Other engineering	1	2	3	2	3	4	3	6	5	12
Sciences, total	133	150	143	186	164	197	203	255	234	257
Physical sciences, total	8	7	7	5	6	10	13	18	13	10
Astronomy	0	0	0	0	1	0	0	0	0	1
Chemistry	7	7	7	5	5	9	9	17	10	8
Physics	1	0	0	0	0	0	4	1	3	1
Other physical sciences	0	0	0	0	0	1	0	0	0	0
Earth, atmospheric, & ocean sciences	0	1	2	1	1	0	1	0	2	2
Mathematics	0	3	1	4	0	1	3	1	2	2
Computer sciences	0	1	0	4	1	4	2	4	3	1
Biological sciences	23	24	22	32	24	32	45	43	40	57
Agricultural sciences	5	1	1	1	4	4	6	6	0	5
Psychology	58	61	72	86	78	75	78	112	115	110
Social sciences	39	52	38	53	50	71	55	71	59	70
Non-S&E, total	390	357	422	420	427	493	510	592	563	560
Health	24	20	18	23	24	41	35	42	36	40
Humanities ¹	36	36	35	48	43	42	55	61	66	73
Education	277	270	327	293	327	356	360	425	406	378
Professional/other	53	31	42	56	33	54	60	64	55	69
Grand total, all fields	527	510	571	614	597	701	726	862	816	840

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, female, Hispanic										
Science and engineering, total	149	155	178	186	205	222	230	232	272	262
Engineering, total	6	8	9	10	15	12	6	11	14	23
Chemical	0	4	1	4	4	3	0	2	6	3
Civil	1	0	2	2	1	2	3	1	0	1
Electrical	2	1	1	0	3	3	0	1	3	6
Mechanical	1	1	1	2	2	0	1	0	0	3
Other engineering	2	2	4	2	5	4	2	7	5	10
Sciences, total	143	147	169	176	190	210	224	221	258	239
Physical sciences, total	16	18	26	11	20	20	21	21	12	13
Astronomy	0	0	0	0	1	0	0	2	1	1
Chemistry	13	17	24	9	16	18	16	14	7	10
Physics	3	1	2	2	3	2	5	5	4	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	4	3	4	2	6	2	2	6	6	4
Mathematics	0	4	4	4	3	2	3	4	0	6
Computer sciences	0	3	1	1	1	1	0	4	7	2
Biological sciences	27	21	33	39	43	57	62	47	66	62
Agricultural sciences	2	3	6	3	4	5	12	5	4	7
Psychology	55	63	57	70	78	86	90	97	120	107
Social sciences	39	32	38	46	35	37	34	37	43	38
Non-S&E, total	159	163	210	223	222	234	282	290	269	303
Health	6	7	15	9	9	16	18	15	22	23
Humanities ¹	55	49	75	72	63	73	89	82	90	96
Education	92	98	105	124	132	128	159	167	130	161
Professional/other	6	9	15	18	18	17	16	26	27	23
Grand total, all fields	308	318	388	409	427	456	512	522	541	565
U.S. citizens and permanent residents, female, Puerto Rican										
Science and engineering, total	38	39	48	47	49	42	59	63	68	73
Engineering, total	2	1	2	2	3	2	0	2	5	4
Chemical	0	0	0	1	0	0	0	1	2	0
Civil	1	0	0	0	0	1	0	0	0	0
Electrical	0	0	1	0	1	1	0	0	0	1
Mechanical	0	1	0	0	1	0	0	0	0	0
Other engineering	1	0	1	1	1	0	0	1	3	3
Sciences, total	36	38	46	45	46	40	59	61	63	69
Physical sciences, total	7	4	10	6	6	5	7	9	4	2
Astronomy	0	0	0	0	0	0	0	1	0	0
Chemistry	6	4	10	5	5	5	6	8	3	2
Physics	1	0	0	1	1	0	1	0	1	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	1	0	0	0	0	1	0	1
Mathematics	0	3	0	0	1	0	0	1	0	1
Computer sciences	0	0	0	0	0	1	0	0	1	0
Biological sciences	10	4	10	11	11	11	14	9	18	16
Agricultural sciences	0	2	1	0	0	3	3	0	1	1
Psychology	14	16	15	14	19	11	30	31	33	37
Social sciences	5	9	9	14	9	9	5	10	6	11
Non-S&E, total	48	51	58	60	70	69	75	86	69	85
Health	2	3	6	1	1	3	4	5	5	6
Humanities ¹	14	12	20	19	12	18	22	16	22	23
Education	29	35	30	36	53	45	45	50	34	50
Professional/other	3	1	2	4	4	3	4	15	8	6
Grand total, all fields	86	90	106	107	119	111	134	149	137	158

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, female, Mexican American										
Science and engineering, total	35	38	37	42	41	49	58	61	54	68
Engineering, total	0	5	2	2	0	2	2	1	3	7
Chemical	0	3	0	1	0	0	0	1	1	1
Civil	0	0	1	0	0	0	0	0	0	0
Electrical	0	1	0	0	0	0	0	0	1	3
Mechanical	0	0	1	1	0	0	0	0	0	0
Other engineering	0	1	0	0	0	2	2	0	1	2
Sciences, total	35	33	35	40	41	47	56	60	51	61
Physical sciences, total	1	2	3	3	2	3	4	4	3	2
Astronomy	0	0	0	0	0	0	0	1	0	0
Chemistry	1	2	3	2	2	2	3	2	2	2
Physics	0	0	0	1	0	1	1	1	1	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	0	1	0	2	0	0	1	2	1
Mathematics	0	0	2	2	0	1	1	2	0	1
Computer sciences	0	0	0	0	0	0	0	2	0	0
Biological sciences	2	3	7	7	13	11	13	11	12	21
Agricultural sciences	2	0	1	1	1	1	2	1	1	0
Psychology	19	21	14	15	18	26	23	33	20	28
Social sciences	9	7	7	12	5	5	13	6	13	8
Non-S&E, total	42	37	35	58	53	71	89	70	73	69
Health	1	2	6	3	5	5	3	5	4	7
Humanities ¹	9	10	8	13	10	16	19	13	20	13
Education	30	24	19	39	32	44	64	51	41	44
Professional/other	2	1	2	3	6	6	3	1	8	5
Grand total, all fields	77	75	72	100	94	120	147	131	127	137
U.S. citizens and permanent residents, female, other Hispanic										
Science and engineering, total	76	78	93	97	115	131	113	108	150	121
Engineering, total	4	2	5	6	12	8	4	8	6	12
Chemical	0	1	1	2	4	3	0	0	3	2
Civil	0	0	1	2	1	1	3	1	0	0
Electrical	2	0	0	0	2	2	0	1	2	2
Mechanical	1	0	0	1	1	0	1	0	0	3
Other engineering	1	1	3	1	4	2	0	6	1	5
Sciences, total	72	76	88	91	103	123	109	100	144	109
Physical sciences, total	8	12	13	2	12	12	10	8	5	9
Astronomy	0	0	0	0	1	0	0	0	1	1
Chemistry	6	11	11	2	9	11	7	4	2	6
Physics	2	1	2	0	2	1	3	4	2	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	3	2	2	4	2	2	4	4	2
Mathematics	0	1	2	2	2	1	2	1	0	4
Computer sciences	0	3	1	1	1	0	0	2	6	2
Biological sciences	15	14	16	21	19	35	35	27	36	25
Agricultural sciences	0	1	4	2	3	1	7	4	2	6
Psychology	22	26	28	41	41	49	37	33	67	42
Social sciences	25	16	22	20	21	23	16	21	24	19
Non-S&E, total	69	75	117	105	99	94	118	134	127	149
Health	3	2	3	5	3	8	11	5	13	10
Humanities ¹	32	27	47	40	41	39	48	53	48	60
Education	33	39	56	49	47	39	50	66	55	67
Professional/other	1	7	11	11	8	8	9	10	11	12
Grand total, all fields	145	153	210	202	214	225	231	242	277	270

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens and permanent residents, female, white										
Science and engineering, total	4,028	4,288	4,522	4,739	4,703	5,012	5,158	5,222	5,353	5,180
Engineering, total	163	224	226	235	240	261	305	320	347	331
Chemical	45	52	48	45	59	51	48	60	69	52
Civil	12	34	29	16	19	25	46	34	31	40
Electrical	22	27	39	34	40	49	54	66	67	55
Mechanical	16	17	19	30	19	32	26	25	39	33
Other engineering	68	94	91	110	103	104	131	135	141	151
Sciences, total	3,865	4,064	4,296	4,504	4,463	4,751	4,853	4,902	5,006	4,849
Physical sciences, total	339	374	385	383	399	388	408	447	431	407
Astronomy	12	11	16	6	11	21	19	19	30	21
Chemistry	277	316	315	313	318	299	307	351	308	302
Physics	42	46	48	61	66	66	80	74	91	79
Other physical sciences	8	1	6	3	4	2	2	3	2	5
Earth, atmospheric, & ocean sciences	100	110	109	142	132	110	123	108	109	123
Mathematics	59	88	79	84	93	124	118	126	105	131
Computer sciences	40	67	80	73	69	83	75	104	61	65
Biological sciences	1,114	1,120	1,154	1,170	1,221	1,311	1,349	1,347	1,401	1,381
Agricultural sciences	110	149	146	123	129	115	120	104	137	120
Psychology	1,351	1,388	1,573	1,661	1,558	1,711	1,701	1,745	1,836	1,652
Social sciences	752	768	770	868	862	909	959	921	926	970
Non-S&E, total	4,637	4,854	5,196	5,293	5,643	5,692	5,878	5,963	6,104	5,723
Health	427	489	459	521	558	592	609	601	611	600
Humanities ¹	1,103	1,097	1,261	1,305	1,432	1,503	1,556	1,700	1,754	1,661
Education	2,645	2,723	2,871	2,887	3,054	2,973	3,076	2,995	3,110	2,820
Professional/other	462	545	605	580	599	624	637	667	629	642
Grand total, all fields	8,665	9,142	9,718	10,032	10,346	10,704	11,036	11,185	11,457	10,903
U.S. citizens										
Science and engineering, total	13,368	13,468	14,167	14,629	14,559	14,932	15,166	15,487	15,621	15,744
Engineering, total	1,780	1,864	1,957	2,086	2,109	2,228	2,215	2,386	2,591	2,688
Chemical	358	382	342	348	318	324	293	291	318	318
Civil	187	188	180	173	164	168	203	206	212	245
Electrical	398	440	491	554	597	630	634	683	705	738
Mechanical	256	259	299	297	352	347	359	383	436	450
Other engineering	581	595	645	714	678	759	726	823	920	937
Sciences, total	11,588	11,604	12,210	12,543	12,450	12,704	12,951	13,101	13,030	13,056
Physical sciences, total	2,119	1,984	2,169	2,120	2,157	2,093	2,198	2,137	2,075	2,112
Astronomy	97	78	92	84	100	106	103	120	137	151
Chemistry	1,378	1,298	1,398	1,351	1,328	1,272	1,291	1,238	1,168	1,223
Physics	626	597	660	671	709	704	789	764	761	724
Other physical sciences	18	11	19	14	20	11	15	15	9	14
Earth, atmospheric, & ocean sciences	493	518	516	592	506	463	507	478	462	518
Mathematics	342	393	375	463	454	496	504	554	488	516
Computer sciences	284	338	348	388	422	425	426	484	421	417
Biological sciences	3,130	3,118	3,191	3,314	3,328	3,449	3,422	3,494	3,547	3,627
Agricultural sciences	539	606	630	564	511	457	519	492	473	463
Psychology	2,668	2,683	2,919	2,953	2,900	3,071	3,052	3,083	3,122	2,886
Social sciences	2,013	1,964	2,062	2,149	2,172	2,250	2,323	2,379	2,442	2,517
Non-S&E, total	9,922	9,933	10,738	10,944	11,451	11,517	11,981	12,253	12,120	11,944
Health	657	729	721	779	809	879	961	938	933	942
Humanities ¹	2,609	2,530	2,899	2,975	3,211	3,274	3,486	3,747	3,726	3,865
Education	5,300	5,246	5,634	5,614	5,852	5,791	5,864	5,777	5,866	5,367
Professional/other	1,356	1,428	1,484	1,576	1,579	1,573	1,670	1,791	1,595	1,770
Grand total, all fields	23,290	23,401	24,905	25,573	26,010	26,449	27,147	27,740	27,741	27,688

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, American Indian/Alaskan Native										
Science and engineering, total	44	53	43	56	69	43	64	69	95	70
Engineering, total	4	7	4	6	11	2	6	10	14	12
Chemical	2	1	0	1	1	1	1	2	1	2
Civil	1	1	2	1	1	0	0	0	2	2
Electrical	0	0	0	2	4	0	1	2	2	4
Mechanical	1	0	0	1	1	0	0	2	3	4
Other engineering	0	5	2	1	4	1	4	4	6	0
Sciences, total	40	46	39	50	58	41	58	59	81	58
Physical sciences, total	6	10	3	10	12	5	6	9	6	9
Astronomy	0	2	0	0	0	1	0	0	0	1
Chemistry	5	5	3	9	6	2	4	7	4	6
Physics	1	3	0	1	6	2	2	2	2	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	6	1	3	1	4	1	0	2	2
Mathematics	2	0	1	0	2	1	2	2	1	1
Computer sciences	1	2	0	1	2	1	1	0	4	1
Biological sciences	6	7	4	10	13	7	16	15	21	9
Agricultural sciences	6	2	4	4	0	1	1	2	5	3
Psychology	7	11	19	13	15	15	12	14	18	17
Social sciences	10	8	7	9	13	7	19	17	24	16
Non-S&E, total	50	41	54	74	80	77	79	80	91	79
Health	5	3	1	5	5	6	6	9	4	5
Humanities ¹	4	7	6	10	18	10	20	18	18	15
Education	36	25	37	55	50	51	37	41	60	48
Professional/other	5	6	10	4	7	10	16	12	9	11
Grand total, all fields	94	94	97	130	149	120	143	149	186	149
U.S. citizens, Asian/Pacific Islander										
Science and engineering, total	454	494	488	599	651	712	736	895	835	1,002
Engineering, total	141	174	157	187	214	217	202	255	271	285
Chemical	32	40	26	27	25	26	27	27	27	17
Civil	8	15	8	11	12	10	7	15	17	15
Electrical	45	48	51	67	95	86	97	92	108	123
Mechanical	22	25	27	26	35	34	28	39	40	48
Other engineering	34	46	45	56	47	61	43	82	79	82
Sciences, total	313	320	331	412	437	495	534	640	564	717
Physical sciences, total	67	75	86	86	108	121	122	148	108	155
Astronomy	2	0	1	0	2	3	4	4	5	6
Chemistry	48	42	54	63	65	76	70	91	56	83
Physics	17	33	31	23	41	42	47	53	47	66
Other physical sciences	0	0	0	0	0	0	1	0	0	0
Earth, atmospheric, & ocean sciences	8	12	4	7	14	6	7	8	8	18
Mathematics	17	13	11	23	21	28	18	25	23	34
Computer sciences	20	18	10	32	37	27	33	42	37	42
Biological sciences	101	122	116	160	134	190	194	229	237	256
Agricultural sciences	9	7	11	9	13	9	14	10	13	17
Psychology	37	38	44	46	47	52	81	84	77	101
Social sciences	54	35	49	49	63	62	65	94	61	94
Non-S&E, total	160	139	153	190	197	179	214	245	256	327
Health	16	11	26	23	32	17	36	23	39	41
Humanities ¹	36	41	30	43	46	53	59	85	82	98
Education	82	57	67	85	80	85	81	82	92	98
Professional/other	26	30	30	39	39	24	38	55	43	90
Grand total, all fields	614	633	641	789	848	891	950	1,140	1,091	1,329

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, black										
Science and engineering, total	275	298	292	368	323	376	391	471	492	522
Engineering, total	19	24	28	43	32	41	44	54	59	82
Chemical	4	2	5	4	8	4	6	2	10	12
Civil	0	2	0	8	0	3	8	7	6	9
Electrical	7	8	7	16	12	13	14	20	17	27
Mechanical	0	5	5	3	3	2	4	8	9	10
Other engineering	8	7	11	12	9	19	12	17	17	24
Sciences, total	256	274	264	325	291	335	347	417	433	440
Physical sciences, total	29	25	19	25	21	29	33	37	46	44
Astronomy	0	0	1	0	1	2	0	1	0	2
Chemistry	18	20	14	19	13	19	23	27	34	29
Physics	11	5	4	6	6	7	9	9	12	13
Other physical sciences	0	0	0	0	1	1	1	0	0	0
Earth, atmospheric, & ocean sciences	2	3	3	2	5	2	3	2	3	5
Mathematics	2	6	4	9	4	5	9	4	8	6
Computer sciences	1	1	1	5	4	5	7	9	12	4
Biological sciences	36	46	37	51	47	64	67	91	82	97
Agricultural sciences	8	6	9	6	6	5	10	9	15	14
Psychology	101	96	111	126	101	117	112	145	146	142
Social sciences	77	91	80	101	103	108	106	120	121	128
Non-S&E, total	543	524	609	642	648	735	710	838	823	813
Health	26	24	25	35	35	52	41	55	42	51
Humanities ¹	67	63	69	84	84	82	94	96	107	123
Education	373	390	456	437	467	516	486	585	582	525
Professional/other	77	47	59	86	62	85	89	102	92	114
Grand total, all fields	818	822	901	1,010	971	1,111	1,101	1,309	1,315	1,335
U.S. citizens, Hispanic										
Science and engineering, total	331	313	390	410	433	444	463	486	531	562
Engineering, total	43	33	39	48	57	56	49	61	86	81
Chemical	3	5	7	10	10	10	5	12	15	6
Civil	10	4	6	5	6	7	7	7	2	9
Electrical	10	10	9	11	14	16	16	14	26	23
Mechanical	5	3	3	8	10	3	7	5	11	14
Other engineering	15	11	14	14	17	20	14	23	32	29
Sciences, total	288	280	351	362	376	388	414	425	445	481
Physical sciences, total	58	52	63	54	58	65	75	61	50	53
Astronomy	2	1	2	1	4	1	2	3	1	3
Chemistry	44	40	50	39	34	43	49	38	31	31
Physics	12	11	11	14	20	21	24	20	18	19
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	7	6	11	12	13	8	7	7	13	16
Mathematics	3	8	7	6	10	9	12	12	8	15
Computer sciences	2	4	4	11	7	5	5	6	12	15
Biological sciences	61	58	73	79	90	93	111	104	109	130
Agricultural sciences	13	12	14	7	9	14	16	10	9	14
Psychology	89	87	100	113	122	120	128	137	167	160
Social sciences	55	53	79	80	67	74	60	88	77	78
Non-S&E, total	264	269	331	321	345	390	421	433	419	485
Health	11	10	17	12	12	19	20	29	31	28
Humanities ¹	86	77	104	105	98	122	129	122	135	165
Education	151	158	179	175	200	213	226	235	204	243
Professional/other	16	24	31	29	35	36	46	47	49	49
Grand total, all fields	595	582	721	731	778	834	884	919	950	1,047

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, Puerto Rican										
Science and engineering, total	96	93	115	99	120	112	131	137	142	173
Engineering, total	13	7	6	9	13	10	10	13	22	23
Chemical	0	1	2	2	3	2	2	4	4	1
Civil	6	1	1	1	1	1	1	1	1	5
Electrical	2	1	2	0	3	5	3	3	4	4
Mechanical	1	3	0	2	1	1	1	1	3	6
Other engineering	4	1	1	4	5	1	3	4	10	7
Sciences, total	83	86	109	90	107	102	121	124	120	150
Physical sciences, total	23	20	24	17	20	17	26	21	12	20
Astronomy	0	1	1	0	1	0	0	1	0	0
Chemistry	19	16	20	14	14	14	19	17	9	13
Physics	4	3	3	3	5	3	7	3	3	7
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	5	0	3	1	0	2	3	5
Mathematics	1	4	2	0	2	1	1	1	3	4
Computer sciences	0	0	2	3	1	1	4	0	5	6
Biological sciences	20	18	24	23	27	27	28	30	32	37
Agricultural sciences	2	7	5	0	3	10	5	3	4	4
Psychology	26	21	26	20	35	24	43	44	48	58
Social sciences	11	16	21	27	16	21	14	23	13	16
Non-S&E, total	78	83	95	92	109	120	126	132	109	139
Health	4	4	6	3	4	3	6	12	7	9
Humanities ¹	23	22	28	30	22	36	38	30	38	49
Education	44	52	56	52	76	70	68	69	51	70
Professional/other	7	5	5	7	7	11	14	21	13	11
Grand total, all fields	174	176	210	191	229	232	257	269	251	312
U.S. citizens, Mexican American										
Science and engineering, total	83	82	96	117	110	103	134	138	142	150
Engineering, total	8	10	12	14	10	10	14	14	26	17
Chemical	0	1	2	4	1	1	1	3	4	3
Civil	0	1	2	2	2	0	1	3	0	1
Electrical	1	2	4	3	3	2	4	3	9	5
Mechanical	1	0	2	3	2	0	2	1	4	3
Other engineering	6	6	2	2	2	7	6	4	9	5
Sciences, total	75	72	84	103	100	93	120	124	116	133
Physical sciences, total	11	11	11	15	9	9	20	13	20	14
Astronomy	1	0	0	0	0	0	1	1	1	0
Chemistry	9	10	11	12	6	6	16	8	14	9
Physics	1	1	0	3	3	3	3	4	5	5
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	4	1	2	4	6	1	4	3	5	4
Mathematics	0	1	3	3	3	2	4	5	2	3
Computer sciences	0	0	0	0	2	0	0	3	1	2
Biological sciences	10	11	20	23	21	22	29	25	28	38
Agricultural sciences	1	3	6	1	4	2	5	3	2	2
Psychology	28	30	25	34	36	40	38	47	38	47
Social sciences	21	15	17	23	19	17	20	25	20	23
Non-S&E, total	93	78	83	99	97	127	156	137	140	140
Health	3	4	7	3	5	7	3	8	6	7
Humanities ¹	20	21	17	23	22	34	39	33	39	34
Education	63	48	49	64	58	73	100	91	78	86
Professional/other	7	5	10	9	12	13	14	5	17	13
Grand total, all fields	176	160	179	216	207	230	290	275	282	290

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, other Hispanic										
Science and engineering, total	152	138	179	194	203	229	198	211	247	239
Engineering, total	22	16	21	25	34	36	25	34	38	41
Chemical	3	3	3	4	6	7	2	5	7	2
Civil	4	2	3	2	3	6	5	3	1	3
Electrical	7	7	3	8	8	9	9	8	13	14
Mechanical	3	0	1	3	7	2	4	3	4	5
Other engineering	5	4	11	8	10	12	5	15	13	17
Sciences, total	130	122	158	169	169	193	173	177	209	198
Physical sciences, total	24	21	28	22	29	39	29	27	18	19
Astronomy	1	0	1	1	3	1	1	1	0	3
Chemistry	16	14	19	13	14	23	14	13	8	9
Physics	7	7	8	8	12	15	14	13	10	7
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	3	5	4	8	4	6	3	2	5	7
Mathematics	2	3	2	3	5	6	7	6	3	8
Computer sciences	2	4	2	8	4	4	1	3	6	7
Biological sciences	31	29	29	33	42	44	54	49	49	55
Agricultural sciences	10	2	3	6	2	2	6	4	3	8
Psychology	35	36	49	59	51	56	47	46	81	55
Social sciences	23	22	41	30	32	36	26	40	44	39
Non-S&E, total	93	108	153	130	139	143	139	164	170	206
Health	4	2	4	6	3	9	11	9	18	12
Humanities ¹	43	34	59	52	54	52	52	59	58	82
Education	44	58	74	59	66	70	58	75	75	87
Professional/other	2	14	16	13	16	12	18	21	19	25
Grand total, all fields	245	246	332	324	342	372	337	375	417	445
U.S. citizens, white										
Science and engineering, total	12,003	12,049	12,694	12,839	12,851	13,211	13,356	13,373	13,450	13,100
Engineering, total	1,531	1,583	1,690	1,707	1,750	1,892	1,886	1,956	2,123	2,126
Chemical	309	328	299	300	267	282	246	242	261	268
Civil	162	163	162	143	142	147	181	175	184	201
Electrical	324	360	413	430	457	507	503	538	541	524
Mechanical	225	218	261	244	300	303	316	319	369	358
Other engineering	511	514	555	590	584	653	640	682	768	775
Sciences, total	10,472	10,466	11,004	11,132	11,101	11,319	11,470	11,417	11,327	10,974
Physical sciences, total	1,900	1,777	1,939	1,896	1,917	1,848	1,944	1,845	1,825	1,779
Astronomy	90	73	86	81	91	97	94	109	127	128
Chemistry	1,236	1,167	1,249	1,201	1,192	1,119	1,139	1,064	1,028	1,034
Physics	556	526	586	601	616	623	698	659	661	603
Other physical sciences	18	11	18	13	18	9	13	13	9	14
Earth, atmospheric, & ocean sciences	462	484	488	546	469	440	486	452	430	458
Mathematics	308	351	346	403	407	445	455	507	440	440
Computer sciences	253	296	325	330	363	379	375	419	342	337
Biological sciences	2,877	2,832	2,909	2,965	2,998	3,056	3,005	3,023	3,050	3,036
Agricultural sciences	493	560	582	527	475	426	471	456	424	396
Psychology	2,404	2,423	2,599	2,616	2,580	2,751	2,694	2,679	2,698	2,422
Social sciences	1,775	1,743	1,816	1,849	1,892	1,974	2,040	2,036	2,118	2,106
Non-S&E, total	8,783	8,845	9,477	9,586	10,060	10,050	10,459	10,547	10,406	9,921
Health	596	675	648	691	714	782	846	807	805	802
Humanities ¹	2,375	2,288	2,649	2,685	2,927	2,969	3,150	3,376	3,338	3,337
Education	4,596	4,576	4,842	4,820	5,007	4,897	4,989	4,801	4,879	4,373
Professional/other	1,216	1,306	1,338	1,390	1,412	1,402	1,474	1,563	1,384	1,409
Grand total, all fields	20,786	20,894	22,171	22,425	22,911	23,261	23,815	23,920	23,856	23,021

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, male										
Science and engineering, total	9,013	8,821	9,274	9,391	9,397	9,429	9,463	9,598	9,569	9,696
Engineering, total	1,602	1,615	1,709	1,807	1,826	1,932	1,872	2,012	2,176	2,278
Chemical	312	322	288	297	250	265	236	221	235	257
Civil	174	151	151	152	144	138	155	170	175	200
Electrical	370	411	446	510	542	573	570	604	623	664
Mechanical	240	240	276	263	329	314	327	355	391	405
Other engineering	506	491	548	585	561	642	584	662	752	752
Sciences, total	7,411	7,206	7,565	7,584	7,571	7,497	7,591	7,586	7,393	7,418
Physical sciences, total	1,750	1,582	1,747	1,708	1,710	1,647	1,745	1,618	1,608	1,644
Astronomy	84	67	76	77	87	86	83	99	106	127
Chemistry	1,073	956	1,046	1,015	971	920	946	829	835	875
Physics	582	549	613	605	636	633	703	677	660	633
Other physical sciences	11	10	12	11	16	8	13	13	7	9
Earth, atmospheric, & ocean sciences	384	404	398	444	368	351	382	366	348	380
Mathematics	283	300	293	370	357	372	382	422	383	378
Computer sciences	245	266	268	305	353	343	349	368	344	336
Biological sciences	1,959	1,928	1,958	2,024	1,999	2,000	1,930	2,006	1,962	2,010
Agricultural sciences	420	450	483	436	377	333	387	380	328	327
Psychology	1,190	1,146	1,195	1,106	1,176	1,202	1,143	1,093	1,017	944
Social sciences	1,180	1,130	1,223	1,191	1,231	1,249	1,273	1,333	1,403	1,399
Non-S&E, total	4,711	4,575	4,891	4,997	5,122	5,088	5,272	5,369	5,131	5,136
Health	196	207	221	221	203	226	283	263	247	252
Humanities ¹	1,450	1,390	1,580	1,606	1,728	1,699	1,837	1,939	1,854	2,020
Education	2,235	2,132	2,272	2,255	2,263	2,282	2,200	2,149	2,149	1,893
Professional/other	830	846	818	915	928	881	952	1,018	881	971
Grand total, all fields	13,724	13,396	14,165	14,388	14,519	14,517	14,735	14,967	14,700	14,832
U.S. citizens, male, American Indian/Alaskan Native										
Science and engineering, total	29	33	25	37	42	25	40	44	62	39
Engineering, total	4	5	4	4	8	2	4	10	12	10
Chemical	2	1	0	0	1	1	1	2	1	1
Civil	1	0	2	1	0	0	0	0	1	1
Electrical	0	0	0	1	3	0	1	2	1	4
Mechanical	1	0	0	1	1	0	0	2	2	4
Other engineering	0	4	2	1	3	1	2	4	6	0
Sciences, total	25	28	21	33	34	23	36	34	50	29
Physical sciences, total	5	10	3	8	10	3	5	6	5	9
Astronomy	0	2	0	0	0	1	0	0	0	1
Chemistry	5	5	3	7	4	1	4	4	3	6
Physics	0	3	0	1	6	1	2	2	2	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	4	0	2	1	4	1	0	2	1
Mathematics	2	0	1	0	1	1	2	1	1	1
Computer sciences	1	1	0	1	2	0	0	0	2	0
Biological sciences	4	4	3	6	8	5	11	10	12	5
Agricultural sciences	4	1	4	4	0	1	1	2	2	3
Psychology	3	3	6	5	6	6	5	6	9	6
Social sciences	5	5	4	7	6	3	11	9	17	4
Non-S&E, total	23	16	27	37	40	35	31	38	40	29
Health	1	0	1	3	3	0	1	2	1	2
Humanities ¹	0	2	4	3	12	7	12	10	9	5
Education	18	10	16	29	20	21	10	17	22	17
Professional/other	4	4	6	2	5	7	8	9	8	5
Grand total, all fields	52	49	52	74	82	60	71	82	102	68

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, male, Asian/Pacific Islander										
Science and engineering, total	337	371	359	407	450	479	492	574	511	628
Engineering, total	132	151	137	160	181	193	171	203	221	240
Chemical	29	31	19	20	18	22	20	16	17	14
Civil	8	13	7	10	11	10	7	13	11	12
Electrical	42	43	47	64	83	79	86	80	95	107
Mechanical	22	24	25	23	33	33	23	35	36	40
Other engineering	31	40	39	43	36	49	35	59	62	67
Sciences, total	205	220	222	247	269	286	321	371	290	388
Physical sciences, total	52	62	67	66	72	79	88	99	75	110
Astronomy	2	0	1	0	1	2	4	3	3	6
Chemistry	34	34	41	48	36	39	43	52	33	52
Physics	16	28	25	18	35	38	40	44	39	52
Other physical sciences	0	0	0	0	0	0	1	0	0	0
Earth, atmospheric, & ocean sciences	6	10	3	4	11	4	6	7	5	13
Mathematics	13	12	8	18	17	18	14	18	15	28
Computer sciences	19	14	9	25	34	23	29	34	28	30
Biological sciences	64	75	77	91	71	102	114	128	107	130
Agricultural sciences	5	4	9	6	8	5	12	5	6	12
Psychology	13	20	19	13	17	20	20	31	20	21
Social sciences	33	23	30	24	39	35	38	49	34	44
Non-S&E, total	77	75	68	76	81	74	99	96	103	132
Health	9	6	12	10	9	7	15	7	16	14
Humanities ¹	16	24	18	17	22	17	31	28	29	38
Education	34	23	19	26	22	34	28	27	31	23
Professional/other	18	22	19	23	28	16	25	34	27	57
Grand total, all fields	414	446	427	483	531	553	591	670	614	760
U.S. citizens, male, black										
Science and engineering, total	150	148	153	190	162	180	192	219	254	259
Engineering, total	15	21	23	35	26	30	31	41	40	60
Chemical	3	1	3	3	7	1	2	1	5	6
Civil	0	2	0	6	0	1	6	4	5	9
Electrical	5	8	6	14	10	11	11	16	12	24
Mechanical	0	5	5	2	3	2	3	8	6	9
Other engineering	7	5	9	10	6	15	9	12	12	12
Sciences, total	135	127	130	155	136	150	161	178	214	199
Physical sciences, total	22	18	13	21	16	20	21	20	34	35
Astronomy	0	0	1	0	0	2	0	1	0	1
Chemistry	12	13	8	15	9	11	15	11	24	22
Physics	10	5	4	6	6	7	5	8	10	12
Other physical sciences	0	0	0	0	1	0	1	0	0	0
Earth, atmospheric, & ocean sciences	2	2	1	1	4	2	2	2	1	3
Mathematics	2	4	3	5	4	4	6	3	6	4
Computer sciences	1	0	1	1	3	2	5	5	9	3
Biological sciences	18	23	16	25	25	34	24	52	46	43
Agricultural sciences	4	5	8	5	5	3	7	4	15	10
Psychology	46	35	42	42	25	43	40	37	39	38
Social sciences	40	40	46	55	54	42	56	55	64	63
Non-S&E, total	167	180	198	231	234	261	219	271	281	268
Health	3	4	7	13	11	15	11	14	10	12
Humanities ¹	35	29	35	37	42	44	42	42	47	53
Education	104	129	139	149	148	169	131	177	185	158
Professional/other	25	18	17	32	33	33	35	38	39	45
Grand total, all fields	317	328	351	421	396	441	411	490	535	527

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, male, Hispanic										
Science and engineering, total	202	180	237	241	263	256	262	282	295	329
Engineering, total	37	27	33	38	46	45	44	51	73	60
Chemical	3	3	7	6	8	7	5	10	10	4
Civil	9	4	5	3	5	5	5	6	2	8
Electrical	8	9	8	11	12	13	16	13	23	17
Mechanical	4	2	2	6	8	3	6	5	11	11
Other engineering	13	9	11	12	13	17	12	17	27	20
Sciences, total	165	153	204	203	217	211	218	231	222	269
Physical sciences, total	45	37	41	44	43	49	58	42	41	43
Astronomy	2	1	2	1	3	1	2	1	1	2
Chemistry	33	25	30	31	23	29	36	24	25	23
Physics	10	11	9	12	17	19	20	17	15	18
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	3	4	7	11	9	6	5	4	9	12
Mathematics	3	4	4	3	7	8	9	9	8	10
Computer sciences	2	1	3	10	6	4	5	2	7	13
Biological sciences	39	43	45	44	55	47	61	68	58	74
Agricultural sciences	12	9	11	6	7	9	9	9	6	11
Psychology	36	27	47	47	52	42	42	43	51	58
Social sciences	25	28	46	38	38	46	29	54	42	48
Non-S&E, total	119	127	143	129	147	167	176	178	183	206
Health	6	3	2	4	4	4	3	15	11	7
Humanities ¹	38	41	44	49	51	55	67	59	65	87
Education	65	68	80	63	74	88	76	82	83	84
Professional/other	10	15	17	13	18	20	30	22	24	28
Grand total, all fields	321	307	380	370	410	423	438	460	478	535
U.S. citizens, male, Puerto Rican										
Science and engineering, total	58	54	67	52	71	70	72	74	74	100
Engineering, total	11	6	4	7	10	8	10	11	17	19
Chemical	0	1	2	1	3	2	2	3	2	1
Civil	5	1	1	1	1	0	1	1	1	5
Electrical	2	1	1	0	2	4	3	3	4	3
Mechanical	1	2	0	2	0	1	1	1	3	6
Other engineering	3	1	0	3	4	1	3	3	7	4
Sciences, total	47	48	63	45	61	62	62	63	57	81
Physical sciences, total	16	16	14	11	14	12	19	12	8	18
Astronomy	0	1	1	0	1	0	0	0	0	0
Chemistry	13	12	10	9	9	9	13	9	6	11
Physics	3	3	3	2	4	3	6	3	2	7
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	4	0	3	1	0	1	3	4
Mathematics	1	1	2	0	1	1	1	0	3	3
Computer sciences	0	0	2	3	1	0	4	0	4	6
Biological sciences	10	14	14	12	16	16	14	21	14	21
Agricultural sciences	2	5	4	0	3	7	2	3	3	3
Psychology	12	5	11	6	16	13	13	13	15	21
Social sciences	6	7	12	13	7	12	9	13	7	5
Non-S&E, total	30	32	37	32	39	51	51	46	40	54
Health	2	1	0	2	3	0	2	7	2	3
Humanities ¹	9	10	8	11	10	18	16	14	16	26
Education	15	17	26	16	23	25	23	19	17	20
Professional/other	4	4	3	3	3	8	10	6	5	5
Grand total, all fields	88	86	104	84	110	121	123	120	114	154

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, male, Mexican American										
Science and engineering, total	51	48	61	76	72	61	80	79	89	85
Engineering, total	8	7	10	12	10	9	12	13	23	10
Chemical	0	0	2	3	1	1	1	2	3	2
Civil	0	1	1	2	2	0	1	3	0	0
Electrical	1	1	4	3	3	2	4	3	8	2
Mechanical	1	0	1	2	2	0	2	1	4	3
Other engineering	6	5	2	2	2	6	4	4	8	3
Sciences, total	43	41	51	64	62	52	68	66	66	75
Physical sciences, total	10	9	8	12	7	7	17	9	17	12
Astronomy	1	0	0	0	0	0	1	0	1	0
Chemistry	8	8	8	10	4	5	14	6	12	7
Physics	1	1	0	2	3	2	2	3	4	5
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	1	1	4	4	1	4	2	3	3
Mathematics	0	1	1	1	3	2	3	3	2	2
Computer sciences	0	0	0	0	2	0	0	1	1	2
Biological sciences	9	8	13	16	10	12	16	16	16	19
Agricultural sciences	0	3	6	1	3	1	4	2	1	2
Psychology	9	10	11	19	19	16	17	14	18	19
Social sciences	13	9	11	11	14	13	7	19	8	16
Non-S&E, total	51	43	48	44	45	56	70	68	70	71
Health	2	2	1	0	0	2	0	3	2	0
Humanities ¹	11	12	9	11	13	18	22	21	21	21
Education	33	25	30	27	26	29	37	40	37	42
Professional/other	5	4	8	6	6	7	11	4	10	8
Grand total, all fields	102	91	109	120	117	117	150	147	159	156
U.S. citizens, male, other Hispanic										
Science and engineering, total	93	78	109	113	120	125	110	129	132	144
Engineering, total	18	14	19	19	26	28	22	27	33	31
Chemical	3	2	3	2	4	4	2	5	5	1
Civil	4	2	3	0	2	5	3	2	1	3
Electrical	5	7	3	8	7	7	9	7	11	12
Mechanical	2	0	1	2	6	2	3	3	4	2
Other engineering	4	3	9	7	7	10	5	10	12	13
Sciences, total	75	64	90	94	94	97	88	102	99	113
Physical sciences, total	19	12	19	21	22	30	22	21	16	13
Astronomy	1	0	1	1	2	1	1	1	0	2
Chemistry	12	5	12	12	10	15	9	9	7	5
Physics	6	7	6	8	10	14	12	11	9	6
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	3	2	7	2	4	1	1	3	5
Mathematics	2	2	1	2	3	5	5	6	3	5
Computer sciences	2	1	1	7	3	4	1	1	2	5
Biological sciences	20	21	18	16	29	19	31	31	28	34
Agricultural sciences	10	1	1	5	1	1	3	4	2	6
Psychology	15	12	25	22	17	13	12	16	18	18
Social sciences	6	12	23	14	17	21	13	22	27	27
Non-S&E, total	38	52	58	53	63	60	55	64	73	81
Health	2	0	1	2	1	2	1	5	7	4
Humanities ¹	18	19	27	27	28	19	29	24	28	40
Education	17	26	24	20	25	34	16	23	29	22
Professional/other	1	7	6	4	9	5	9	12	9	15
Grand total, all fields	131	130	167	166	183	185	165	193	205	225

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, male, white										
Science and engineering, total	8,087	7,881	8,291	8,237	8,293	8,370	8,356	8,327	8,288	8,101
Engineering, total	1,376	1,371	1,474	1,486	1,523	1,644	1,595	1,660	1,799	1,816
Chemical	268	280	254	262	211	233	201	186	198	220
Civil	151	131	135	128	125	122	137	145	155	163
Electrical	304	337	374	397	419	462	453	479	481	478
Mechanical	210	201	242	217	281	272	291	295	332	326
Other engineering	443	422	469	482	487	555	513	555	633	629
Sciences, total	6,711	6,510	6,817	6,751	6,770	6,726	6,761	6,667	6,489	6,285
Physical sciences, total	1,570	1,412	1,571	1,524	1,535	1,473	1,557	1,420	1,419	1,391
Astronomy	78	62	70	75	81	78	75	91	98	107
Chemistry	964	857	942	896	885	828	843	732	738	744
Physics	517	483	547	543	555	560	628	586	576	531
Other physical sciences	11	10	12	10	14	7	11	11	7	9
Earth, atmospheric, & ocean sciences	363	377	379	409	339	332	366	346	326	338
Mathematics	253	268	272	324	319	334	344	388	347	320
Computer sciences	215	235	248	260	299	307	305	320	286	275
Biological sciences	1,797	1,745	1,776	1,825	1,802	1,782	1,700	1,722	1,706	1,698
Agricultural sciences	387	415	441	406	349	314	353	357	293	279
Psychology	1,078	1,049	1,059	980	1,059	1,081	1,022	967	892	803
Social sciences	1,048	1,009	1,071	1,023	1,068	1,103	1,114	1,147	1,220	1,181
Non-S&E, total	4,257	4,106	4,398	4,447	4,549	4,498	4,699	4,725	4,456	4,329
Health	177	191	198	186	171	198	250	222	206	212
Humanities ¹	1,333	1,257	1,451	1,466	1,574	1,546	1,662	1,764	1,679	1,763
Education	1,987	1,882	1,999	1,968	1,977	1,958	1,937	1,833	1,803	1,577
Professional/other	760	776	750	827	827	796	850	906	768	777
Grand total, all fields	12,344	11,987	12,689	12,684	12,842	12,868	13,055	13,052	12,744	12,430
U.S. citizens, female										
Science and engineering, total	4,355	4,647	4,893	5,238	5,162	5,503	5,703	5,889	6,052	6,048
Engineering, total	178	249	248	279	283	296	343	374	415	410
Chemical	46	60	54	51	68	59	57	70	83	61
Civil	13	37	29	21	20	30	48	36	37	45
Electrical	28	29	45	44	55	57	64	79	82	74
Mechanical	16	19	23	34	23	33	32	28	45	45
Other engineering	75	104	97	129	117	117	142	161	168	185
Sciences, total	4,177	4,398	4,645	4,959	4,879	5,207	5,360	5,515	5,637	5,638
Physical sciences, total	369	402	422	412	447	446	453	519	467	468
Astronomy	13	11	16	7	13	20	20	21	31	24
Chemistry	305	342	352	336	357	352	345	409	333	348
Physics	44	48	47	66	73	71	86	87	101	91
Other physical sciences	7	1	7	3	4	3	2	2	2	5
Earth, atmospheric, & ocean sciences	109	114	118	148	138	112	125	112	114	138
Mathematics	59	93	82	93	97	124	122	132	105	138
Computer sciences	39	72	80	83	69	82	77	116	77	81
Biological sciences	1,171	1,190	1,233	1,290	1,329	1,449	1,492	1,488	1,585	1,617
Agricultural sciences	119	156	147	128	134	124	132	112	145	136
Psychology	1,478	1,537	1,724	1,847	1,724	1,869	1,909	1,990	2,105	1,942
Social sciences	833	834	839	958	941	1,001	1,050	1,046	1,039	1,118
Non-S&E, total	5,211	5,358	5,847	5,947	6,329	6,429	6,709	6,884	6,989	6,808
Health	461	522	500	558	606	653	678	675	686	690
Humanities ¹	1,159	1,140	1,319	1,369	1,483	1,575	1,649	1,808	1,872	1,845
Education	3,065	3,114	3,362	3,359	3,589	3,509	3,664	3,628	3,717	3,474
Professional/other	526	582	666	661	651	692	718	773	714	799
Grand total, all fields	9,566	10,005	10,740	11,185	11,491	11,932	12,412	12,773	13,041	12,856

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, female, American Indian/Alaskan Native										
Science and engineering, total	15	20	18	19	27	18	24	25	33	31
Engineering, total	0	2	0	2	3	0	2	0	2	2
Chemical	0	0	0	1	0	0	0	0	0	1
Civil	0	1	0	0	1	0	0	0	1	1
Electrical	0	0	0	1	1	0	0	0	1	0
Mechanical	0	0	0	0	0	0	0	0	0	0
Other engineering	0	1	0	0	1	0	2	0	0	0
Sciences, total	15	18	18	17	24	18	22	25	31	29
Physical sciences, total	1	0	0	2	2	2	1	3	1	0
Astronomy	0	0	0	0	0	0	0	0	0	0
Chemistry	0	0	0	2	2	1	0	3	1	0
Physics	1	0	0	0	0	1	1	0	0	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	2	1	1	0	0	0	0	0	1
Mathematics	0	0	0	0	1	0	0	1	0	0
Computer sciences	0	1	0	0	0	1	1	0	2	1
Biological sciences	2	3	1	4	5	2	5	5	9	4
Agricultural sciences	2	1	0	0	0	0	0	0	3	0
Psychology	4	8	13	8	9	9	7	8	9	11
Social sciences	5	3	3	2	7	4	8	8	7	12
Non-S&E, total	27	25	27	37	40	42	48	42	51	50
Health	4	3	0	2	2	6	5	7	3	3
Humanities ¹	4	5	2	7	6	3	8	8	9	10
Education	18	15	21	26	30	30	27	24	38	31
Professional/other	1	2	4	2	2	3	8	3	1	6
Grand total, all fields	42	45	45	56	67	60	72	67	84	81
U.S. citizens, female, Asian/Pacific Islander										
Science and engineering, total	117	123	129	192	201	233	244	321	324	374
Engineering, total	9	23	20	27	33	24	31	52	50	45
Chemical	3	9	7	7	7	4	7	11	10	3
Civil	0	2	1	1	1	0	0	2	6	3
Electrical	3	5	4	3	12	7	11	12	13	16
Mechanical	0	1	2	3	2	1	5	4	4	8
Other engineering	3	6	6	13	11	12	8	23	17	15
Sciences, total	108	100	109	165	168	209	213	269	274	329
Physical sciences, total	15	13	19	20	36	42	34	49	45	45
Astronomy	0	0	0	0	1	1	0	1	2	0
Chemistry	14	8	13	15	29	37	27	39	23	31
Physics	1	5	6	5	6	4	7	9	8	14
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	2	1	3	3	2	1	1	3	5
Mathematics	4	1	3	5	4	10	4	7	8	6
Computer sciences	1	4	1	7	3	4	4	8	9	12
Biological sciences	37	47	39	69	63	88	80	101	130	126
Agricultural sciences	4	3	2	3	5	4	2	5	7	5
Psychology	24	18	25	33	30	32	61	53	57	80
Social sciences	21	12	19	25	24	27	27	45	27	50
Non-S&E, total	83	64	85	114	116	105	115	149	153	195
Health	7	5	14	13	23	10	21	16	23	27
Humanities ¹	20	17	12	26	24	36	28	57	53	60
Education	48	34	48	59	58	51	53	55	61	75
Professional/other	8	8	11	16	11	8	13	21	16	33
Grand total, all fields	200	187	214	306	317	338	359	470	477	569

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, female, black										
Science and engineering, total	125	150	139	178	161	196	199	252	238	263
Engineering, total	4	3	5	8	6	11	13	13	19	22
Chemical	1	1	2	1	1	3	4	1	5	6
Civil	0	0	0	2	0	2	2	3	1	0
Electrical	2	0	1	2	2	2	3	4	5	3
Mechanical	0	0	0	1	0	0	1	0	3	1
Other engineering	1	2	2	2	3	4	3	5	5	12
Sciences, total	121	147	134	170	155	185	186	239	219	241
Physical sciences, total	7	7	6	4	5	9	12	17	12	9
Astronomy	0	0	0	0	1	0	0	0	0	1
Chemistry	6	7	6	4	4	8	8	16	10	7
Physics	1	0	0	0	0	0	4	1	2	1
Other physical sciences	0	0	0	0	0	1	0	0	0	0
Earth, atmospheric, & ocean sciences	0	1	2	1	1	0	1	0	2	2
Mathematics	0	2	1	4	0	1	3	1	2	2
Computer sciences	0	1	0	4	1	3	2	4	3	1
Biological sciences	18	23	21	26	22	30	43	39	36	54
Agricultural sciences	4	1	1	1	1	2	3	5	0	4
Psychology	55	61	69	84	76	74	72	108	107	104
Social sciences	37	51	34	46	49	66	50	65	57	65
Non-S&E, total	376	344	411	411	414	474	491	567	542	545
Health	23	20	18	22	24	37	30	41	32	39
Humanities ¹	32	34	34	47	42	38	52	54	60	70
Education	269	261	317	288	319	347	355	408	397	367
Professional/other	52	29	42	54	29	52	54	64	53	69
Grand total, all fields	501	494	550	589	575	670	690	819	780	808
U.S. citizens, female, Hispanic										
Science and engineering, total	129	133	153	169	170	188	201	204	236	233
Engineering, total	6	6	6	10	11	11	5	10	13	21
Chemical	0	2	0	4	2	3	0	2	5	2
Civil	1	0	1	2	1	2	2	1	0	1
Electrical	2	1	1	0	2	3	0	1	3	6
Mechanical	1	1	1	2	2	0	1	0	0	3
Other engineering	2	2	3	2	4	3	2	6	5	9
Sciences, total	123	127	147	159	159	177	196	194	223	212
Physical sciences, total	13	15	22	10	15	16	17	19	9	10
Astronomy	0	0	0	0	1	0	0	2	0	1
Chemistry	11	15	20	8	11	14	13	14	6	8
Physics	2	0	2	2	3	2	4	3	3	1
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	4	2	4	1	4	2	2	3	4	4
Mathematics	0	4	3	3	3	1	3	3	0	5
Computer sciences	0	3	1	1	1	1	0	4	5	2
Biological sciences	22	15	28	35	35	46	50	36	51	56
Agricultural sciences	1	3	3	1	2	5	7	1	3	3
Psychology	53	60	53	66	70	78	86	94	116	102
Social sciences	30	25	33	42	29	28	31	34	35	30
Non-S&E, total	145	142	188	192	198	223	245	255	236	279
Health	5	7	15	8	8	15	17	14	20	21
Humanities ¹	48	36	60	56	47	67	62	63	70	78
Education	86	90	99	112	126	125	150	153	121	159
Professional/other	6	9	14	16	17	16	16	25	25	21
Grand total, all fields	274	275	341	361	368	411	446	459	472	512

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, female, Puerto Rican										
Science and engineering, total	38	39	48	47	49	42	59	63	68	73
Engineering, total	2	1	2	2	3	2	0	2	5	4
Chemical	0	0	0	1	0	0	0	1	2	0
Civil	1	0	0	0	0	1	0	0	0	0
Electrical	0	0	1	0	1	1	0	0	0	1
Mechanical	0	1	0	0	1	0	0	0	0	0
Other engineering	1	0	1	1	1	0	0	1	3	3
Sciences, total	36	38	46	45	46	40	59	61	63	69
Physical sciences, total	7	4	10	6	6	5	7	9	4	2
Astronomy	0	0	0	0	0	0	0	1	0	0
Chemistry	6	4	10	5	5	5	6	8	3	2
Physics	1	0	0	1	1	0	1	0	1	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	1	0	0	0	0	1	0	1
Mathematics	0	3	0	0	1	0	0	1	0	1
Computer sciences	0	0	0	0	0	1	0	0	1	0
Biological sciences	10	4	10	11	11	11	14	9	18	16
Agricultural sciences	0	2	1	0	0	3	3	0	1	1
Psychology	14	16	15	14	19	11	30	31	33	37
Social sciences	5	9	9	14	9	9	5	10	6	11
Non-S&E, total	48	51	58	60	70	69	75	86	69	85
Health	2	3	6	1	1	3	4	5	5	6
Humanities ¹	14	12	20	19	12	18	22	16	22	23
Education	29	35	30	36	53	45	45	50	34	50
Professional/other	3	1	2	4	4	3	4	15	8	6
Grand total, all fields	86	90	106	107	119	111	134	149	137	158
U.S. citizens, female, Mexican American										
Science and engineering, total	32	34	35	41	38	42	54	59	53	65
Engineering, total	0	3	2	2	0	1	2	1	3	7
Chemical	0	1	0	1	0	0	0	1	1	1
Civil	0	0	1	0	0	0	0	0	0	1
Electrical	0	1	0	0	0	0	0	0	1	3
Mechanical	0	0	1	1	0	0	0	0	0	0
Other engineering	0	1	0	0	0	1	2	0	1	2
Sciences, total	32	31	33	39	38	41	52	58	50	58
Physical sciences, total	1	2	3	3	2	2	3	4	3	2
Astronomy	0	0	0	0	0	0	0	1	0	0
Chemistry	1	2	3	2	2	1	2	2	1	2
Physics	0	0	0	1	0	1	1	1	1	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	0	1	0	2	0	0	1	2	1
Mathematics	0	0	2	2	0	0	1	2	0	1
Computer sciences	0	0	0	0	0	0	0	2	0	0
Biological sciences	1	3	7	7	11	10	13	9	12	19
Agricultural sciences	1	0	0	0	1	1	1	1	1	0
Psychology	19	20	14	15	17	24	21	33	20	28
Social sciences	8	6	6	12	5	4	13	6	12	7
Non-S&E, total	42	35	35	55	52	71	86	69	70	69
Health	1	2	6	3	5	5	3	5	4	7
Humanities ¹	9	9	8	12	9	16	17	12	18	13
Education	30	23	19	37	32	44	63	51	41	44
Professional/other	2	1	2	3	6	6	3	1	7	5
Grand total, all fields	74	69	70	96	90	113	140	128	123	134

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens, female, other Hispanic										
Science and engineering, total	59	60	70	81	83	104	88	82	115	95
Engineering, total	4	2	2	6	8	8	3	7	5	10
Chemical	0	1	0	2	2	3	0	0	2	1
Civil	0	0	0	2	1	1	2	1	0	0
Electrical	2	0	0	0	1	2	0	1	2	2
Mechanical	1	0	0	1	1	0	1	0	0	3
Other engineering	1	1	2	1	3	2	0	5	1	4
Sciences, total	55	58	68	75	75	96	85	75	110	85
Physical sciences, total	5	9	9	1	7	9	7	6	2	6
Astronomy	0	0	0	0	1	0	0	0	0	1
Chemistry	4	9	7	1	4	8	5	4	1	4
Physics	1	0	2	0	2	1	2	2	1	1
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	2	2	2	1	2	2	2	1	2	2
Mathematics	0	1	1	1	2	1	2	0	0	3
Computer sciences	0	3	1	1	1	0	0	2	4	2
Biological sciences	11	8	11	17	13	25	23	18	21	21
Agricultural sciences	0	1	2	1	1	1	3	0	1	2
Psychology	20	24	24	37	34	43	35	30	63	37
Social sciences	17	10	18	16	15	15	13	18	17	12
Non-S&E, total	55	56	95	77	76	83	84	100	97	125
Health	2	2	3	4	2	7	10	4	11	8
Humanities ¹	25	15	32	25	26	33	23	35	30	42
Education	27	32	50	39	41	36	42	52	46	65
Professional/other	1	7	10	9	7	7	9	9	10	10
Grand total, all fields	114	116	165	158	159	187	172	182	212	220
U.S. citizens, female, white										
Science and engineering, total	3,916	4,168	4,403	4,602	4,558	4,841	5,000	5,046	5,162	4,999
Engineering, total	155	212	216	221	227	248	291	296	324	310
Chemical	41	48	45	38	56	49	45	56	63	48
Civil	11	32	27	15	17	25	44	30	29	38
Electrical	20	23	39	33	38	45	50	59	60	46
Mechanical	15	17	19	27	19	31	25	24	37	32
Other engineering	68	92	86	108	97	98	127	127	135	146
Sciences, total	3,761	3,956	4,187	4,381	4,331	4,593	4,709	4,750	4,838	4,689
Physical sciences, total	330	365	368	372	382	375	387	425	406	388
Astronomy	12	11	16	6	10	19	19	18	29	21
Chemistry	272	310	307	305	307	291	296	332	290	290
Physics	39	43	39	58	61	63	70	73	85	72
Other physical sciences	7	1	6	3	4	2	2	2	2	5
Earth, atmospheric, & ocean sciences	99	107	109	137	130	108	120	106	104	120
Mathematics	55	83	74	79	88	111	111	119	93	120
Computer sciences	38	61	77	70	64	72	70	99	56	62
Biological sciences	1,080	1,087	1,133	1,140	1,196	1,274	1,305	1,301	1,344	1,338
Agricultural sciences	106	145	141	121	126	112	118	99	131	117
Psychology	1,326	1,374	1,540	1,636	1,521	1,670	1,672	1,712	1,806	1,619
Social sciences	727	734	745	826	824	871	926	889	898	925
Non-S&E, total	4,526	4,739	5,079	5,139	5,511	5,552	5,760	5,822	5,950	5,592
Health	419	484	450	505	543	584	596	585	599	590
Humanities ¹	1,042	1,031	1,198	1,219	1,353	1,423	1,488	1,612	1,659	1,574
Education	2,609	2,694	2,843	2,852	3,030	2,939	3,052	2,968	3,076	2,796
Professional/other	456	530	588	563	585	606	624	657	616	632
Grand total, all fields	8,442	8,907	9,482	9,741	10,069	10,393	10,760	10,868	11,112	10,591

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with permanent visas										
Science and engineering, total	1,130	1,124	1,197	1,285	1,383	1,641	3,021	3,509	3,007	2,261
Engineering, total	366	365	389	388	411	469	838	956	792	593
Chemical	50	62	50	51	60	53	87	90	74	87
Civil	46	59	61	40	51	59	89	103	93	78
Electrical	105	99	108	132	122	165	265	288	221	189
Mechanical	71	66	69	62	74	87	179	180	152	81
Other engineering	94	79	101	103	104	105	218	295	252	158
Sciences, total	764	759	808	897	972	1,172	2,183	2,553	2,215	1,668
Physical sciences, total	139	147	172	180	200	237	591	704	493	361
Astronomy	7	4	4	2	6	5	9	21	12	6
Chemistry	73	85	99	110	113	128	325	386	293	203
Physics	55	57	65	68	81	102	255	295	187	151
Other physical sciences	4	1	4	0	0	2	2	2	1	1
Earth, atmospheric, & ocean sciences	27	29	19	26	35	41	106	116	96	69
Mathematics	44	35	47	55	53	94	153	217	158	100
Computer sciences	42	58	55	63	67	84	117	132	92	89
Biological sciences	192	182	189	211	240	303	666	835	818	576
Agricultural sciences	71	45	57	56	62	49	97	106	103	83
Psychology	61	54	73	65	86	90	84	101	104	90
Social sciences	188	209	196	241	229	274	369	342	351	300
Non-S&E, total	492	502	501	572	597	618	726	810	758	652
Health	35	27	35	60	46	60	89	107	83	69
Humanities ¹	150	186	183	219	229	238	280	308	319	286
Education	177	164	153	174	165	177	199	218	196	165
Professional/other	130	125	130	119	157	143	158	177	160	132
Grand total, all fields	1,622	1,626	1,698	1,857	1,980	2,259	3,747	4,319	3,765	2,913
Non-U.S. citizens with permanent visas, American Indian/Alaskan Native										
Science and engineering, total	0	0	0	0	0	0	0	0	1	1
Engineering, total	0	0	0	0	0	0	0	0	0	0
Chemical	0	0	0	0	0	0	0	0	0	0
Civil	0	0	0	0	0	0	0	0	0	0
Electrical	0	0	0	0	0	0	0	0	0	0
Mechanical	0	0	0	0	0	0	0	0	0	0
Other engineering	0	0	0	0	0	0	0	0	0	0
Sciences, total	0	0	0	0	0	0	0	0	1	1
Physical sciences, total	0	0	0	0	0	0	0	0	0	0
Astronomy	0	0	0	0	0	0	0	0	0	0
Chemistry	0	0	0	0	0	0	0	0	0	0
Physics	0	0	0	0	0	0	0	0	0	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	0	0	0	0	0	0	0	0
Mathematics	0	0	0	0	0	0	0	0	0	0
Computer sciences	0	0	0	0	0	0	0	0	0	0
Biological sciences	0	0	0	0	0	0	0	0	0	0
Agricultural sciences	0	0	0	0	0	0	0	0	0	1
Psychology	0	0	0	0	0	0	0	0	0	0
Social sciences	0	0	0	0	0	0	0	0	1	0
Non-S&E, total	0	0	0	2	0	0	0	0	0	1
Health	0	0	0	0	0	0	0	0	0	0
Humanities ¹	0	0	0	0	0	0	0	0	0	1
Education	0	0	0	1	0	0	0	0	0	0
Professional/other	0	0	0	1	0	0	0	0	0	0
Grand total, all fields	0	0	0	2	0	0	0	0	1	2

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with permanent visas, Asian/Pacific Islander										
Science and engineering, total	462	492	521	581	694	898	2,253	2,776	2,256	1,525
Engineering, total	191	187	202	218	237	310	665	778	624	419
Chemical	35	37	25	23	29	36	69	74	54	56
Civil	19	21	20	19	22	31	62	76	72	59
Electrical	58	45	64	73	80	113	207	230	167	130
Mechanical	35	41	42	36	43	59	151	151	126	63
Other engineering	44	43	51	67	63	71	176	247	205	111
Sciences, total	271	305	319	363	457	588	1,588	1,998	1,632	1,106
Physical sciences, total	71	81	78	86	119	144	478	603	396	249
Astronomy	3	2	4	0	2	1	6	18	7	2
Chemistry	37	54	45	59	70	81	262	325	240	152
Physics	30	24	27	27	47	61	208	259	148	94
Other physical sciences	1	1	2	0	0	1	2	1	1	1
Earth, atmospheric, & ocean sciences	6	11	11	10	13	16	82	96	69	53
Mathematics	16	11	16	34	31	51	124	183	117	65
Computer sciences	24	34	38	34	49	50	84	95	74	64
Biological sciences	70	79	84	101	135	180	526	696	651	461
Agricultural sciences	21	16	21	15	24	20	58	68	68	46
Psychology	10	17	9	13	12	21	28	38	47	27
Social sciences	53	56	62	70	74	106	208	219	210	141
Non-S&E, total	159	143	144	161	222	228	343	393	350	286
Health	14	11	13	21	20	28	58	71	50	45
Humanities ¹	28	38	32	38	53	55	92	108	109	75
Education	48	45	37	45	64	59	92	95	93	78
Professional/other	69	49	62	57	85	86	101	119	98	88
Grand total, all fields	621	635	665	742	916	1,126	2,596	3,169	2,606	1,811
Non-U.S. citizens with permanent visas, black										
Science and engineering, total	86	69	82	96	85	93	109	89	84	85
Engineering, total	12	9	12	12	17	9	10	17	15	15
Chemical	3	3	5	4	5	2	2	1	2	4
Civil	1	3	1	4	3	2	0	4	2	1
Electrical	0	1	1	0	5	2	3	4	5	4
Mechanical	1	0	0	0	2	1	3	6	1	2
Other engineering	7	2	5	4	2	2	2	2	5	4
Sciences, total	74	60	70	84	68	84	99	72	69	70
Physical sciences, total	5	6	11	7	4	12	13	6	14	6
Astronomy	0	0	0	0	0	0	0	0	0	0
Chemistry	4	6	10	4	4	12	11	6	11	4
Physics	1	0	1	3	0	0	2	0	3	2
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	1	1	0	1	1	2	3	1	1	4
Mathematics	2	2	0	2	0	3	2	1	0	1
Computer sciences	1	0	0	3	1	1	3	2	0	0
Biological sciences	12	11	14	13	15	11	12	17	16	11
Agricultural sciences	12	8	6	11	8	11	12	8	10	10
Psychology	4	1	4	4	5	2	12	6	8	10
Social sciences	37	31	35	43	34	42	42	31	20	28
Non-S&E, total	66	72	67	60	60	76	69	79	58	56
Health	6	5	7	5	3	7	5	5	7	4
Humanities ¹	9	8	3	8	6	16	12	18	12	16
Education	44	42	40	35	34	41	35	44	27	28
Professional/other	7	17	17	12	17	12	17	12	12	8
Grand total, all fields	152	141	149	156	145	169	178	168	142	141

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with permanent visas, Hispanic										
Science and engineering, total	66	69	78	82	80	98	85	85	92	83
Engineering, total	20	14	15	12	14	10	17	16	12	14
Chemical	2	4	1	1	6	0	2	1	4	1
Civil	3	4	3	0	1	5	7	4	4	2
Electrical	4	4	4	4	3	1	5	1	0	3
Mechanical	2	0	2	1	1	2	1	3	2	1
Other engineering	9	2	5	6	3	2	2	7	2	7
Sciences, total	46	55	63	70	66	88	68	69	80	69
Physical sciences, total	5	7	9	11	14	14	15	12	16	11
Astronomy	0	1	0	0	0	1	0	1	1	0
Chemistry	4	3	7	7	8	8	10	5	4	8
Physics	1	3	2	4	6	5	5	6	11	3
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	3	2	4	3	5	1	6	6	0
Mathematics	1	3	3	3	2	7	1	3	2	3
Computer sciences	0	0	1	1	1	2	2	0	4	1
Biological sciences	15	13	16	16	12	21	20	23	22	15
Agricultural sciences	8	6	9	8	9	6	9	11	4	12
Psychology	4	6	9	9	11	11	5	8	6	9
Social sciences	13	17	14	18	14	22	15	6	20	18
Non-S&E, total	32	43	38	54	51	41	61	57	63	51
Health	2	1	0	4	1	5	5	1	7	3
Humanities ¹	16	23	23	31	31	23	39	31	39	35
Education	7	13	11	14	14	9	15	23	13	10
Professional/other	7	6	4	5	5	4	2	2	4	3
Grand total, all fields	98	112	116	136	131	139	146	142	155	134
Non-U.S. citizens with permanent visas, white										
Science and engineering, total	452	452	476	484	475	526	533	529	549	523
Engineering, total	124	143	150	130	130	133	134	134	137	136
Chemical	8	17	19	22	17	13	13	14	13	23
Civil	21	28	34	16	24	21	18	19	15	14
Electrical	39	45	37	48	30	46	45	50	47	51
Mechanical	28	23	25	22	26	25	21	19	23	15
Other engineering	28	30	35	22	33	28	37	32	39	33
Sciences, total	328	309	326	354	345	393	399	395	412	387
Physical sciences, total	48	51	69	72	56	63	81	77	63	87
Astronomy	3	1	0	2	4	3	3	2	4	3
Chemistry	22	21	35	38	27	26	40	47	35	37
Physics	21	29	32	32	25	33	38	27	24	47
Other physical sciences	2	0	2	0	0	1	0	1	0	0
Earth, atmospheric, & ocean sciences	18	14	6	11	16	15	18	12	19	12
Mathematics	24	18	26	16	18	31	24	28	38	30
Computer sciences	12	23	14	25	15	31	26	34	14	20
Biological sciences	88	72	66	76	70	90	102	96	121	84
Agricultural sciences	25	10	19	18	18	12	16	17	20	14
Psychology	41	30	49	36	56	56	36	48	43	42
Social sciences	72	91	77	100	96	95	96	83	94	98
Non-S&E, total	222	224	231	276	239	265	246	270	280	245
Health	10	9	14	29	21	18	21	28	17	15
Humanities ¹	96	111	117	136	134	140	133	147	156	154
Education	72	58	58	69	44	68	55	52	61	44
Professional/other	44	46	42	42	40	39	37	43	46	32
Grand total, all fields	674	676	707	760	714	791	779	799	829	768

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with permanent visas, male										
Science and engineering, total	874	850	908	926	968	1,120	2,230	2,485	2,099	1,495
Engineering, total	348	339	361	351	366	417	733	810	684	494
Chemical	43	53	42	42	46	48	66	72	59	71
Civil	44	56	56	36	48	57	82	87	83	65
Electrical	100	92	106	128	110	142	241	247	198	156
Mechanical	70	66	68	59	72	84	157	159	137	72
Other engineering	91	72	89	86	90	86	187	245	207	130
Sciences, total	526	511	547	575	602	703	1,497	1,675	1,415	1,001
Physical sciences, total	98	112	124	138	133	162	419	515	350	248
Astronomy	6	2	2	2	4	2	8	17	8	5
Chemistry	50	62	68	78	69	79	206	258	187	124
Physics	39	47	50	58	60	79	204	239	154	119
Other physical sciences	3	1	4	0	0	2	1	1	1	0
Earth, atmospheric, & ocean sciences	24	23	19	17	26	33	87	84	80	51
Mathematics	33	27	36	36	33	54	124	166	118	66
Computer sciences	35	46	45	52	53	57	100	105	78	72
Biological sciences	111	96	110	111	131	168	415	463	462	298
Agricultural sciences	62	37	45	47	46	39	69	83	73	62
Psychology	27	28	25	22	30	21	26	35	26	27
Social sciences	136	142	143	152	150	169	257	224	228	177
Non-S&E, total	290	289	282	298	325	351	407	424	384	328
Health	20	18	18	31	23	34	45	62	45	33
Humanities ¹	65	83	80	97	104	116	141	138	146	130
Education	102	89	86	92	84	96	107	94	89	74
Professional/other	103	99	98	78	114	105	114	130	104	91
Grand total, all fields	1,164	1,139	1,190	1,224	1,293	1,471	2,637	2,909	2,483	1,823
Non-U.S. citizens with permanent visas, female										
Science and engineering, total	256	274	289	359	415	521	791	1,024	908	766
Engineering, total	18	26	28	37	45	52	105	146	108	99
Chemical	7	9	8	9	14	5	21	18	15	16
Civil	2	3	5	4	3	2	7	16	10	13
Electrical	5	7	2	4	12	23	24	41	23	33
Mechanical	1	0	1	3	2	3	22	21	15	9
Other engineering	3	7	12	17	14	19	31	50	45	28
Sciences, total	238	248	261	322	370	469	686	878	800	667
Physical sciences, total	41	35	48	42	67	75	172	189	143	113
Astronomy	1	2	2	0	2	3	1	4	4	1
Chemistry	23	23	31	32	44	49	119	128	106	79
Physics	16	10	15	10	21	23	51	56	33	32
Other physical sciences	1	0	0	0	0	0	1	1	0	1
Earth, atmospheric, & ocean sciences	3	6	0	9	9	8	19	32	16	18
Mathematics	11	8	11	19	20	40	29	51	40	34
Computer sciences	7	12	10	11	14	27	17	27	14	17
Biological sciences	81	86	79	100	109	135	251	372	356	278
Agricultural sciences	9	8	12	9	16	10	28	23	30	21
Psychology	34	26	48	43	56	69	58	66	78	63
Social sciences	52	67	53	89	79	105	112	118	123	123
Non-S&E, total	202	213	219	274	272	267	319	386	374	324
Health	15	9	17	29	23	26	44	45	38	36
Humanities ¹	85	103	103	122	125	122	139	170	173	156
Education	75	75	67	82	81	81	92	124	107	91
Professional/other	27	26	32	41	43	38	44	47	56	41
Grand total, all fields	458	487	508	633	687	788	1,110	1,410	1,282	1,090

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with temporary visas										
Science and engineering, total	4,936	5,391	6,571	7,641	8,092	8,113	7,521	6,994	7,802	6,948
Engineering, total	1,721	1,940	2,277	2,633	2,743	2,784	2,653	2,524	2,716	2,396
Chemical	236	236	250	281	339	336	336	318	399	324
Civil	266	262	284	353	357	380	385	337	369	292
Electrical	419	498	602	690	725	703	735	712	749	660
Mechanical	333	358	465	493	538	554	459	437	430	426
Other engineering	467	586	676	816	784	811	738	720	769	694
Sciences, total	3,215	3,451	4,294	5,008	5,349	5,329	4,868	4,470	5,086	4,552
Physical sciences, total	870	890	1,073	1,257	1,346	1,263	1,107	930	1,139	1,015
Astronomy	20	26	30	37	28	34	32	28	42	34
Chemistry	442	461	530	689	729	675	597	493	613	561
Physics	403	401	507	525	581	550	471	399	481	419
Other physical sciences	5	2	6	6	8	4	7	10	3	1
Earth, atmospheric, & ocean sciences	132	122	171	185	236	235	197	173	205	212
Mathematics	305	346	424	506	511	517	448	382	441	416
Computer sciences	176	178	271	340	365	348	343	365	376	314
Biological sciences	557	608	853	1,059	1,159	1,246	1,058	969	1,240	1,212
Agricultural sciences	345	355	440	435	472	447	453	429	442	347
Psychology	84	106	117	133	156	148	151	164	181	127
Social sciences	746	846	945	1,093	1,104	1,125	1,111	1,058	1,062	909
Non-S&E, total	1,259	1,257	1,522	1,670	1,861	1,819	1,885	1,816	1,808	1,515
Health	118	134	166	171	226	214	230	245	267	252
Humanities ¹	290	283	354	444	495	466	529	548	522	464
Education	481	452	501	503	553	546	537	502	477	365
Professional/other	370	388	501	552	587	593	589	521	542	434
Grand total, all fields	6,195	6,648	8,093	9,311	9,953	9,932	9,406	8,810	9,610	8,463
Non-U.S. citizens with temporary visas, American Indian/Alaskan Native										
Science and engineering, total	0	0	0	0	1	1	2	0	2	4
Engineering, total	0	0	0	0	0	0	1	0	1	3
Chemical	0	0	0	0	0	0	0	0	0	2
Civil	0	0	0	0	0	0	0	0	0	0
Electrical	0	0	0	0	0	0	0	0	0	0
Mechanical	0	0	0	0	0	0	0	0	0	1
Other engineering	0	0	0	0	0	0	1	0	1	0
Sciences, total	0	0	0	0	1	1	1	0	1	1
Physical sciences, total	0	0	0	0	0	0	0	0	1	0
Astronomy	0	0	0	0	0	0	0	0	0	0
Chemistry	0	0	0	0	0	0	0	0	1	0
Physics	0	0	0	0	0	0	0	0	0	0
Other physical sciences	0	0	0	0	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	0	0	0	0	0	0	0	0	0	0
Mathematics	0	0	0	0	0	0	1	0	0	0
Computer sciences	0	0	0	0	0	0	0	0	0	0
Biological sciences	0	0	0	0	1	0	0	0	0	0
Agricultural sciences	0	0	0	0	0	1	0	0	0	1
Psychology	0	0	0	0	0	0	0	0	0	0
Social sciences	0	0	0	0	0	0	0	0	0	0
Non-S&E, total	0	0	1	0	1	0	1	0	0	4
Health	0	0	0	0	0	0	0	0	0	1
Humanities ¹	0	0	0	0	1	0	1	0	0	1
Education	0	0	1	0	0	0	0	0	0	1
Professional/other	0	0	0	0	0	0	0	0	0	1
Grand total, all fields	0	0	1	0	2	1	3	0	2	8

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with temporary visas, Asian/Pacific Islander										
Science and engineering, total	2,897	3,254	4,160	5,017	5,495	5,579	4,788	4,423	5,131	4,640
Engineering, total	1,124	1,264	1,497	1,848	1,992	2,058	1,839	1,799	2,008	1,793
Chemical	167	148	165	210	243	248	222	236	282	238
Civil	147	137	163	199	202	241	225	217	255	212
Electrical	279	327	396	501	516	516	518	500	566	502
Mechanical	244	242	341	383	425	437	359	339	347	341
Other engineering	287	410	432	555	606	616	515	507	558	500
Sciences, total	1,773	1,990	2,663	3,169	3,503	3,521	2,949	2,624	3,123	2,847
Physical sciences, total	595	642	792	910	998	934	773	597	766	637
Astronomy	6	13	15	19	17	19	15	14	19	14
Chemistry	329	362	418	538	569	533	452	360	454	394
Physics	257	266	353	351	409	380	303	220	291	229
Other physical sciences	3	1	6	2	3	2	3	3	2	0
Earth, atmospheric, & ocean sciences	67	56	95	96	141	142	92	89	110	124
Mathematics	150	187	254	321	330	320	243	170	233	226
Computer sciences	114	120	192	239	253	254	244	235	267	212
Biological sciences	323	352	558	707	838	907	676	630	832	854
Agricultural sciences	131	149	209	224	249	228	212	208	250	183
Psychology	27	35	48	47	62	71	70	93	89	72
Social sciences	366	449	515	625	632	665	639	602	576	539
Non-S&E, total	621	653	771	932	1,010	1,025	1,011	955	962	836
Health	53	72	76	94	125	136	130	142	151	153
Humanities ¹	101	94	104	162	170	179	174	179	175	168
Education	229	231	255	294	318	310	312	281	278	218
Professional/other	238	256	336	382	397	400	395	353	358	297
Grand total, all fields	3,518	3,907	4,931	5,949	6,505	6,604	5,799	5,378	6,093	5,476
Non-U.S. citizens with temporary visas, black										
Science and engineering, total	191	171	195	189	195	210	268	213	237	173
Engineering, total	36	23	35	25	24	31	34	31	41	34
Chemical	4	3	4	3	1	6	8	2	9	7
Civil	5	5	10	7	5	10	9	4	8	3
Electrical	4	6	8	4	5	3	6	10	6	7
Mechanical	4	3	3	2	6	4	2	9	4	3
Other engineering	19	6	10	9	7	8	9	6	14	14
Sciences, total	155	148	160	164	171	179	234	182	196	139
Physical sciences, total	17	13	6	28	23	15	25	25	24	19
Astronomy	0	0	0	1	0	0	0	0	0	0
Chemistry	12	12	4	21	20	13	18	17	21	16
Physics	5	1	2	6	3	2	6	8	3	3
Other physical sciences	0	0	0	0	0	0	1	0	0	0
Earth, atmospheric, & ocean sciences	4	3	3	2	9	3	4	6	8	6
Mathematics	4	5	9	4	8	9	11	6	6	6
Computer sciences	2	3	1	5	1	3	1	3	4	1
Biological sciences	32	24	26	27	24	28	43	24	39	26
Agricultural sciences	31	33	39	32	43	42	68	49	39	36
Psychology	6	4	6	6	3	6	6	4	5	5
Social sciences	59	63	70	60	60	73	76	65	71	40
Non-S&E, total	100	102	96	104	116	112	121	124	127	77
Health	9	12	4	15	17	13	12	18	17	9
Humanities ¹	14	9	12	17	26	31	22	27	29	15
Education	60	56	56	52	48	51	59	52	61	39
Professional/other	17	25	24	20	25	17	28	27	20	14
Grand total, all fields	291	273	291	293	311	322	389	337	364	250

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with temporary visas, Hispanic										
Science and engineering, total	292	311	301	359	367	361	386	349	404	329
Engineering, total	61	70	74	68	66	78	93	72	99	69
Chemical	15	12	9	10	14	16	19	8	23	13
Civil	18	11	15	13	14	13	17	12	19	15
Electrical	6	10	10	18	15	15	14	20	18	11
Mechanical	6	10	14	5	6	11	10	7	6	12
Other engineering	16	27	26	22	17	23	33	25	33	18
Sciences, total	231	241	227	291	301	283	293	277	305	260
Physical sciences, total	34	28	33	37	42	33	27	21	35	31
Astronomy	1	1	3	2	1	3	2	2	2	0
Chemistry	17	15	17	20	21	15	19	9	13	16
Physics	16	12	13	15	19	15	6	9	20	15
Other physical sciences	0	0	0	0	1	0	0	1	0	0
Earth, atmospheric, & ocean sciences	12	14	8	10	14	21	22	18	22	12
Mathematics	24	19	20	33	27	25	24	23	19	20
Computer sciences	5	6	9	13	7	6	9	8	15	15
Biological sciences	45	56	50	62	68	59	69	77	76	63
Agricultural sciences	64	55	54	58	47	62	60	59	42	37
Psychology	5	9	8	13	10	8	9	9	12	4
Social sciences	42	54	45	65	86	69	73	62	84	78
Non-S&E, total	57	52	85	87	115	93	116	123	108	101
Health	3	4	9	7	12	11	10	10	14	7
Humanities ¹	26	18	43	47	51	43	64	76	59	58
Education	21	22	18	23	34	19	30	22	19	26
Professional/other	7	8	15	10	18	20	12	15	16	10
Grand total, all fields	349	363	386	446	482	454	502	472	512	430
Non-U.S. citizens with temporary visas, white										
Science and engineering, total	1,273	1,380	1,502	1,642	1,696	1,761	1,850	1,801	1,829	1,633
Engineering, total	411	491	549	531	556	559	599	548	495	451
Chemical	35	57	58	48	68	62	74	62	70	49
Civil	88	96	82	113	121	107	121	90	77	57
Electrical	109	133	154	139	153	149	175	157	139	132
Mechanical	69	88	90	67	85	91	75	77	64	62
Other engineering	110	117	165	164	129	150	154	162	145	151
Sciences, total	862	889	953	1,111	1,140	1,202	1,251	1,253	1,334	1,182
Physical sciences, total	184	172	174	235	239	251	260	255	292	296
Astronomy	10	11	11	13	10	12	15	12	19	16
Chemistry	74	57	62	87	94	100	101	89	116	119
Physics	99	103	101	132	132	137	141	148	156	160
Other physical sciences	1	1	0	3	3	2	3	6	1	1
Earth, atmospheric, & ocean sciences	40	43	54	61	57	61	71	59	63	67
Mathematics	107	121	119	112	129	150	156	172	171	150
Computer sciences	44	42	59	78	88	76	84	107	79	80
Biological sciences	129	150	174	216	193	217	235	208	272	246
Agricultural sciences	91	83	92	86	104	101	97	97	102	72
Psychology	37	56	53	60	73	59	62	56	70	42
Social sciences	230	222	228	263	257	287	286	299	285	229
Non-S&E, total	409	374	446	458	539	533	571	556	563	446
Health	43	38	62	49	53	51	56	67	69	74
Humanities ¹	137	150	162	192	230	195	249	250	246	208
Education	140	107	130	112	124	142	122	128	110	65
Professional/other	89	79	92	105	132	145	144	111	138	99
Grand total, all fields	1,682	1,754	1,948	2,100	2,235	2,294	2,421	2,357	2,392	2,079

See explanatory information, if any, and SOURCE at end of table.

Table 3. Science and engineering (S&E) doctorates awarded, by citizenship status, sex, racial/ethnic group, and major field of study of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with temporary visas, male										
Science and engineering, total	4,254	4,609	5,590	6,412	6,741	6,658	6,201	5,748	6,305	5,556
Engineering, total	1,651	1,850	2,157	2,484	2,574	2,623	2,475	2,365	2,488	2,196
Chemical	226	225	234	259	308	309	301	297	354	282
Civil	252	250	271	337	330	358	360	314	338	272
Electrical	408	469	573	659	679	660	679	668	697	625
Mechanical	324	349	452	473	518	535	445	424	414	398
Other engineering	441	557	627	756	739	761	690	662	685	619
Sciences, total	2,603	2,759	3,433	3,928	4,167	4,035	3,726	3,383	3,817	3,360
Physical sciences, total	743	743	895	1,041	1,098	1,015	908	770	930	816
Astronomy	18	22	28	30	24	32	28	24	36	25
Chemistry	366	355	421	547	556	503	440	378	465	423
Physics	354	365	441	460	510	477	433	360	427	368
Other physical sciences	5	1	5	4	8	3	7	8	2	0
Earth, atmospheric, & ocean sciences	119	109	153	165	198	202	158	151	169	179
Mathematics	262	299	363	420	427	422	364	304	358	345
Computer sciences	168	160	256	317	329	322	302	322	335	278
Biological sciences	385	400	582	694	787	809	704	635	799	743
Agricultural sciences	295	300	359	366	391	357	366	340	340	269
Psychology	48	60	62	77	81	64	71	79	87	55
Social sciences	583	688	763	848	856	844	853	782	799	675
Non-S&E, total	880	835	1,042	1,105	1,222	1,205	1,129	1,110	1,090	897
Health	75	87	101	101	159	138	115	142	151	127
Humanities ¹	180	171	211	255	280	275	294	309	280	257
Education	308	264	306	288	299	306	269	244	242	179
Professional/other	317	313	424	461	484	486	451	415	417	334
Grand total, all fields	5,134	5,444	6,632	7,517	7,963	7,863	7,330	6,858	7,395	6,453
Non-U.S. citizens with temporary visas, female										
Science and engineering, total	682	782	981	1,229	1,351	1,455	1,320	1,246	1,497	1,392
Engineering, total	70	90	120	149	169	161	178	159	228	200
Chemical	10	11	16	22	31	27	35	21	45	42
Civil	14	12	13	16	27	22	25	23	31	20
Electrical	11	29	29	31	46	43	56	44	52	35
Mechanical	9	9	13	20	20	19	14	13	16	28
Other engineering	26	29	49	60	45	50	48	58	84	75
Sciences, total	612	692	861	1,080	1,182	1,294	1,142	1,087	1,269	1,192
Physical sciences, total	127	147	178	216	248	248	199	160	209	199
Astronomy	2	4	2	7	4	2	4	4	6	9
Chemistry	76	106	109	142	173	172	157	115	148	138
Physics	49	36	66	65	71	73	38	39	54	51
Other physical sciences	0	1	1	2	0	1	0	2	1	1
Earth, atmospheric, & ocean sciences	13	13	18	20	38	33	39	22	36	33
Mathematics	43	47	61	86	84	95	84	78	83	71
Computer sciences	8	18	15	23	36	26	41	43	41	36
Biological sciences	172	208	271	365	372	437	354	334	441	469
Agricultural sciences	50	55	81	69	81	90	87	89	102	78
Psychology	36	46	55	56	75	84	80	85	94	72
Social sciences	163	158	182	245	248	281	258	276	263	234
Non-S&E, total	379	422	480	565	639	614	756	706	718	618
Health	43	47	65	70	67	76	115	103	116	125
Humanities ¹	110	112	143	189	215	191	235	239	242	207
Education	173	188	195	215	254	240	268	258	235	186
Professional/other	53	75	77	91	103	107	138	106	125	100
Grand total, all fields	1,061	1,204	1,461	1,794	1,990	2,069	2,076	1,952	2,215	2,010

¹ Categories differ from those published by other Federal sponsors and the Summary Reports in that linguistics, history of science, American studies, and archaeology are included not in humanities but in social science.

NOTE: Details may not add to totals because of persons with unknown race/ethnicity.

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total										
Science and engineering, total	20,932	21,732	22,868	24,023	24,675	25,443	26,205	26,535	27,230	26,847
Engineering, total	4,187	4,543	4,894	5,214	5,438	5,698	5,822	6,008	6,305	6,052
Aeronautical/astronautical	150	178	192	207	234	228	230	252	287	272
Chemical	685	712	658	691	725	737	725	708	798	764
Civil	531	538	553	575	594	624	684	656	697	653
Electrical	1,010	1,137	1,276	1,405	1,483	1,543	1,673	1,731	1,740	1,695
Industrial	127	162	151	165	196	236	228	284	258	241
Materials/metallurgical	374	380	440	489	485	535	539	588	572	573
Mechanical	715	760	884	875	987	1,030	1,015	1,025	1,052	1,010
Other engineering	595	676	740	807	734	765	728	764	901	844
Sciences, total	16,745	17,189	17,974	18,809	19,237	19,745	20,383	20,527	20,925	20,795
Physical sciences, total	3,350	3,261	3,524	3,626	3,781	3,699	3,977	3,841	3,838	3,711
Astronomy	130	113	128	125	134	145	144	173	192	197
Chemistry	2,015	1,970	2,100	2,194	2,214	2,137	2,257	2,162	2,148	2,115
Physics	1,172	1,161	1,265	1,286	1,403	1,399	1,548	1,479	1,485	1,379
Other physical sciences	33	17	31	21	30	18	28	27	13	20
Earth, atmospheric, and ocean sciences	695	723	738	815	794	771	824	780	794	862
Mathematics	749	859	892	1,039	1,058	1,146	1,118	1,190	1,122	1,112
Computer sciences	515	612	705	800	869	880	903	997	921	889
Biological sciences	4,111	4,116	4,328	4,650	4,799	5,092	5,203	5,376	5,723	5,717
Agricultural sciences	1,015	1,086	1,174	1,073	1,063	968	1,078	1,036	1,037	966
Psychology	3,074	3,208	3,281	3,250	3,263	3,420	3,379	3,429	3,491	3,489
Social sciences	3,236	3,324	3,332	3,556	3,610	3,769	3,901	3,878	3,999	4,049
Non-S&E, total	12,568	12,595	13,199	13,511	14,215	14,358	14,829	15,208	15,185	15,858
Health	882	974	956	1,041	1,112	1,197	1,296	1,330	1,324	1,394
Humanities 1	3,274	3,242	3,535	3,720	4,036	4,092	4,374	4,690	4,713	4,996
Education	6,362	6,281	6,510	6,454	6,677	6,689	6,708	6,649	6,772	6,497
Professional/other	2,050	2,098	2,198	2,296	2,390	2,380	2,451	2,539	2,376	2,971
Grand total, all fields	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,415	42,705
Citizenship known										
Science and engineering, total	19,434	19,983	21,935	23,555	24,034	24,686	25,708	25,990	26,430	24,953
Engineering, total	3,867	4,169	4,623	5,107	5,263	5,481	5,706	5,866	6,099	5,677
Aeronautical/astronautical	129	166	176	205	215	219	226	247	277	261
Chemical	644	680	642	680	717	713	716	699	791	729
Civil	499	509	525	566	572	607	677	646	674	615
Electrical	922	1,037	1,201	1,376	1,444	1,498	1,634	1,683	1,675	1,587
Industrial	117	150	148	162	192	230	228	280	252	225
Materials/metallurgical	352	347	424	481	469	516	530	575	556	544
Mechanical	660	683	833	852	964	988	997	1,000	1,018	957
Other engineering	544	597	674	785	690	710	698	736	856	759
Sciences, total	15,567	15,814	17,312	18,448	18,771	19,205	20,002	20,124	20,331	19,276
Physical sciences, total	3,128	3,021	3,414	3,557	3,703	3,593	3,896	3,771	3,707	3,488
Astronomy	124	108	126	123	134	145	144	169	191	191
Chemistry	1,893	1,844	2,027	2,150	2,170	2,075	2,213	2,117	2,074	1,987
Physics	1,084	1,055	1,232	1,264	1,371	1,356	1,515	1,458	1,429	1,294
Other physical sciences	27	14	29	20	28	17	24	27	13	16
Earth, atmospheric, and ocean sciences	652	669	706	803	777	739	810	767	763	799
Mathematics	691	774	846	1,024	1,018	1,107	1,105	1,153	1,087	1,032
Computer sciences	502	574	674	791	854	857	886	981	889	820
Biological sciences	3,879	3,908	4,233	4,584	4,727	4,998	5,146	5,298	5,605	5,415
Agricultural sciences	955	1,006	1,127	1,055	1,045	953	1,069	1,027	1,018	893
Psychology	2,813	2,843	3,109	3,151	3,142	3,309	3,287	3,348	3,407	3,103
Social sciences	2,947	3,019	3,203	3,483	3,505	3,649	3,803	3,779	3,855	3,726
Non-S&E, total	11,673	11,692	12,761	13,186	13,909	13,954	14,592	14,879	14,686	14,111
Health	810	890	922	1,010	1,081	1,153	1,280	1,290	1,283	1,263
Humanities 1	3,049	2,999	3,436	3,638	3,935	3,978	4,295	4,603	4,567	4,615
Education	5,958	5,862	6,288	6,291	6,570	6,514	6,600	6,497	6,539	5,897
Professional/other	1,856	1,941	2,115	2,247	2,323	2,309	2,417	2,489	2,297	2,336
Grand total, all fields	31,107	31,675	34,696	36,741	37,943	38,640	40,300	40,869	41,116	39,064

See explanatory information, if any, and SOURCE at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens										
Science and engineering, total	13,368	13,468	14,167	14,629	14,559	14,932	15,166	15,487	15,621	15,744
Engineering, total	1,780	1,864	1,957	2,086	2,109	2,228	2,215	2,386	2,591	2,688
Aeronautical/astronautical	67	74	82	103	95	114	110	140	166	153
Chemical	358	382	342	348	318	324	293	291	318	318
Civil	187	188	180	173	164	168	203	206	212	245
Electrical	398	440	491	554	597	630	634	683	705	738
Industrial	40	51	56	50	54	89	89	108	107	97
Materials/metallurgical	172	173	190	211	202	228	218	238	244	270
Mechanical	256	259	299	297	352	347	359	383	436	450
Other engineering	302	297	317	350	327	328	309	337	403	417
Sciences, total	11,588	11,604	12,210	12,543	12,450	12,704	12,951	13,101	13,030	13,056
Physical sciences, total	2,119	1,984	2,169	2,120	2,157	2,093	2,198	2,137	2,075	2,112
Astronomy	97	78	92	84	100	106	103	120	137	151
Chemistry	1,378	1,298	1,398	1,351	1,328	1,272	1,291	1,238	1,168	1,223
Physics	626	597	660	671	709	704	789	764	761	724
Other physical sciences	18	11	19	14	20	11	15	15	9	14
Earth, atmospheric, and ocean sciences	493	518	516	592	506	463	507	478	462	518
Mathematics	342	393	375	463	454	496	504	554	488	516
Computer sciences	284	338	348	388	422	425	426	484	421	417
Biological sciences	3,130	3,118	3,191	3,314	3,328	3,449	3,422	3,494	3,547	3,627
Agricultural sciences	539	606	630	564	511	457	519	492	473	463
Psychology	2,668	2,683	2,919	2,953	2,900	3,071	3,052	3,083	3,122	2,886
Social sciences	2,013	1,964	2,062	2,149	2,172	2,250	2,323	2,379	2,442	2,517
Non-S&E, total	9,922	9,933	10,738	10,944	11,451	11,517	11,981	12,253	12,120	11,944
Health	657	729	721	779	809	879	961	938	933	942
Humanities ¹	2,609	2,530	2,899	2,975	3,211	3,274	3,486	3,747	3,726	3,865
Education	5,300	5,246	5,634	5,614	5,852	5,791	5,864	5,777	5,866	5,367
Professional/other	1,356	1,428	1,484	1,576	1,579	1,573	1,670	1,791	1,595	1,770
Grand total, all fields	23,290	23,401	24,905	25,573	26,010	26,449	27,147	27,740	27,741	27,688
Non-U.S. citizens										
Science and engineering, total	6,066	6,515	7,768	8,926	9,475	9,754	10,542	10,503	10,809	9,209
Engineering, total	2,087	2,305	2,666	3,021	3,154	3,253	3,491	3,480	3,508	2,989
Aeronautical/astronautical	62	92	94	102	120	105	116	107	111	108
Chemical	286	298	300	332	399	389	423	408	473	411
Civil	312	321	345	393	408	439	474	440	462	370
Electrical	524	597	710	822	847	868	1,000	1,000	970	849
Industrial	77	99	92	112	138	141	139	172	145	128
Materials/metallurgical	180	174	234	270	267	288	312	337	312	274
Mechanical	404	424	534	555	612	641	638	617	582	507
Other engineering	242	300	357	435	363	382	389	399	453	342
Sciences, total	3,979	4,210	5,102	5,905	6,321	6,501	7,051	7,023	7,301	6,220
Physical sciences, total	1,009	1,037	1,245	1,437	1,546	1,500	1,698	1,634	1,632	1,376
Astronomy	27	30	34	39	34	39	41	49	54	40
Chemistry	515	546	629	799	842	803	922	879	906	764
Physics	458	458	572	593	662	652	726	694	668	570
Other physical sciences	9	3	10	6	8	6	9	12	4	2
Earth, atmospheric, and ocean sciences	159	151	190	211	271	276	303	289	301	281
Mathematics	349	381	471	561	564	611	601	599	599	516
Computer sciences	218	236	326	403	432	432	460	497	468	403
Biological sciences	749	790	1,042	1,270	1,399	1,549	1,724	1,804	2,058	1,788
Agricultural sciences	416	400	497	491	534	496	550	535	545	430
Psychology	145	160	190	198	242	238	235	265	285	217
Social sciences	934	1,055	1,141	1,334	1,333	1,399	1,480	1,400	1,413	1,209
Non-S&E, total	1,751	1,759	2,023	2,242	2,458	2,437	2,611	2,626	2,566	2,167
Health	153	161	201	231	272	274	319	352	350	321
Humanities ¹	440	469	537	663	724	704	809	856	841	750
Education	658	616	654	677	718	723	736	720	673	530
Professional/other	500	513	631	671	744	736	747	698	702	566
Grand total, all fields	7,817	8,274	9,791	11,168	11,933	12,191	13,153	13,129	13,375	11,376

See explanatory information, if any, and SOURCE at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with permanent visas										
Science and engineering, total	1,130	1,124	1,197	1,285	1,383	1,641	3,021	3,509	3,007	2,261
Engineering, total	366	365	389	388	411	469	838	956	792	593
Aeronautical/astronautical	14	8	8	11	8	6	20	13	18	13
Chemical	50	62	50	51	60	53	87	90	74	87
Civil	46	59	61	40	51	59	89	103	93	78
Electrical	105	99	108	132	122	165	265	288	221	189
Industrial	11	8	13	18	20	16	30	41	29	17
Materials/metallurgical	27	21	26	29	34	39	79	114	92	44
Mechanical	71	66	69	62	74	87	179	180	152	81
Other engineering	42	42	54	45	42	44	89	127	113	84
Sciences, total	764	759	808	897	972	1,172	2,183	2,553	2,215	1,668
Physical sciences, total	139	147	172	180	200	237	591	704	493	361
Astronomy	7	4	4	2	6	5	9	21	12	6
Chemistry	73	85	99	110	113	128	325	386	293	203
Physics	55	57	65	68	81	102	255	295	187	151
Other physical sciences	4	1	4	0	0	2	2	2	1	1
Earth, atmospheric, and ocean sciences	27	29	19	26	35	41	106	116	96	69
Mathematics	44	35	47	55	53	94	153	217	158	100
Computer sciences	42	58	55	63	67	84	117	132	92	89
Biological sciences	192	182	189	211	240	303	666	835	818	576
Agricultural sciences	71	45	57	56	62	49	97	106	103	83
Psychology	61	54	73	65	86	90	84	101	104	90
Social sciences	188	209	196	241	229	274	369	342	351	300
Non-S&E, total	492	502	501	572	597	618	726	810	758	652
Health	35	27	35	60	46	60	89	107	83	69
Humanities ¹	150	186	183	219	229	238	280	308	319	286
Education	177	164	153	174	165	177	199	218	196	165
Professional/other	130	125	130	119	157	143	158	177	160	132
Grand total, all fields	1,622	1,626	1,698	1,857	1,980	2,259	3,747	4,319	3,765	2,913
Non-U.S. citizens with temporary visas										
Science and engineering, total	4,936	5,391	6,571	7,641	8,092	8,113	7,521	6,994	7,802	6,948
Engineering, total	1,721	1,940	2,277	2,633	2,743	2,784	2,653	2,524	2,716	2,396
Aeronautical/astronautical	48	84	86	91	112	99	96	94	93	95
Chemical	236	236	250	281	339	336	336	318	399	324
Civil	266	262	284	353	357	380	385	337	369	292
Electrical	419	498	602	690	725	703	735	712	749	660
Industrial	66	91	79	94	118	125	109	131	116	111
Materials/metallurgical	153	153	208	241	233	249	233	223	220	230
Mechanical	333	358	465	493	538	554	459	437	430	426
Other engineering	200	258	303	390	321	338	300	272	340	258
Sciences, total	3,215	3,451	4,294	5,008	5,349	5,329	4,868	4,470	5,086	4,552
Physical sciences, total	870	890	1,073	1,257	1,346	1,263	1,107	930	1,139	1,015
Astronomy	20	26	30	37	28	34	32	28	42	34
Chemistry	442	461	530	689	729	675	597	493	613	561
Physics	403	401	507	525	581	550	471	399	481	419
Other physical sciences	5	2	6	6	8	4	7	10	3	1
Earth, atmospheric, and ocean sciences	132	122	171	185	236	235	197	173	205	212
Mathematics	305	346	424	506	511	517	448	382	441	416
Computer sciences	176	178	271	340	365	348	343	365	376	314
Biological sciences	557	608	853	1,059	1,159	1,246	1,058	969	1,240	1,212
Agricultural sciences	345	355	440	435	472	447	453	429	442	347
Psychology	84	106	117	133	156	148	151	164	181	127
Social sciences	746	846	945	1,093	1,104	1,125	1,111	1,058	1,062	909
Non-S&E, total	1,259	1,257	1,522	1,670	1,861	1,819	1,885	1,816	1,808	1,515
Health	118	134	166	171	226	214	230	245	267	252
Humanities ¹	290	283	354	444	495	466	529	548	522	464
Education	481	452	501	503	553	546	537	502	477	365
Professional/other	370	388	501	552	587	593	589	521	542	434
Grand total, all fields	6,195	6,648	8,093	9,311	9,953	9,932	9,406	8,810	9,610	8,463

See explanatory information, if any, and SOURCE at end of table.

Table 4. Science and engineering (S&E) doctorates awarded, by major field and citizenship status of recipients: 1988-97

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Citizenship unknown										
Science and engineering, total	1,498	1,749	933	468	641	757	497	545	800	1,894
Engineering, total	320	374	271	107	175	217	116	142	206	375
Aeronautical/astronautical	21	12	16	2	19	9	4	5	10	11
Chemical	41	32	16	11	8	24	9	9	7	35
Civil	32	29	28	9	22	17	7	10	23	38
Electrical	88	100	75	29	39	45	39	48	65	108
Industrial	10	12	3	3	4	6	0	4	6	16
Materials/metallurgical	22	33	16	8	16	19	9	13	16	29
Mechanical	55	77	51	23	23	42	18	25	34	53
Other engineering	51	79	66	22	44	55	30	28	45	85
Sciences, total	1,178	1,375	662	361	466	540	381	403	594	1,519
Physical sciences, total	222	240	110	69	78	106	81	70	131	223
Astronomy	6	5	2	2	0	0	0	4	1	6
Chemistry	122	126	73	44	44	62	44	45	74	128
Physics	88	106	33	22	32	43	33	21	56	85
Other physical sciences	6	3	2	1	2	1	4	0	0	4
Earth, atmospheric, and ocean sciences	43	54	32	12	17	32	14	13	31	63
Mathematics	58	85	46	15	40	39	13	37	35	80
Computer sciences	13	38	31	9	15	23	17	16	32	69
Biological sciences	232	208	95	66	72	94	57	78	118	302
Agricultural sciences	60	80	47	18	18	15	9	9	19	73
Psychology	261	365	172	99	121	111	92	81	84	386
Social sciences	289	305	129	73	105	120	98	99	144	323
Non-S&E, total	895	903	438	325	306	404	237	329	499	1,747
Health	72	84	34	31	31	44	16	40	41	131
Humanities ¹	225	243	99	82	101	114	79	87	146	381
Education	404	419	222	163	107	175	108	152	233	600
Professional/other	194	157	83	49	67	71	34	50	79	635
Grand total, all fields	2,393	2,652	1,371	793	947	1,161	734	874	1,299	3,641

¹ Categories differ from those published by other Federal sponsors and the Summary Report in that linguistics, history of science, American studies, and archaeology are included not in humanities but in social science.

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1988-97**

Page 1 of 4

Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	20.0	20.9	21.4	21.7	22.0	22.4	22.2	22.6	23.2	22.5
Aeronautical/astronautical .....	.7	.8	.8	.9	.9	.9	.9	.9	1.1	1.0
Chemical	3.3	3.3	2.9	2.9	2.9	2.9	2.8	2.7	2.9	2.8
Civil	2.5	2.5	2.4	2.4	2.4	2.5	2.6	2.5	2.6	2.4
Electrical	4.8	5.2	5.6	5.8	6.0	6.1	6.4	6.5	6.4	6.3
Industrial .....	.6	.7	.7	.7	.8	.9	.9	1.1	.9	.9
Materials/metallurgical	1.8	1.7	1.9	2.0	2.0	2.1	2.1	2.2	2.1	2.1
Mechanical	3.4	3.5	3.9	3.6	4.0	4.0	3.9	3.9	3.9	3.8
Other engineering	2.8	3.1	3.2	3.4	3.0	3.0	2.8	2.9	3.3	3.1
Sciences, total	80.0	79.1	78.6	78.3	78.0	77.6	77.8	77.4	76.8	77.5
Physical sciences, total	16.0	15.0	15.4	15.1	15.3	14.5	15.2	14.5	14.1	13.8
Astronomy .....	.6	.5	.6	.5	.5	.6	.5	.7	.7	.7
Chemistry	9.6	9.1	9.2	9.1	9.0	8.4	8.6	8.1	7.9	7.9
Physics	5.6	5.3	5.5	5.4	5.7	5.5	5.9	5.6	5.5	5.1
Other physical sciences .....	.2	.1	.1	.1	.1	.1	.1	.1	.0	.1
Earth, atmospheric, and ocean sciences	3.3	3.3	3.2	3.4	3.2	3.0	3.1	2.9	2.9	3.2
Mathematics	3.6	4.0	3.9	4.3	4.3	4.5	4.3	4.5	4.1	4.1
Computer sciences	2.5	2.8	3.1	3.3	3.5	3.5	3.4	3.8	3.4	3.3
Biological sciences	19.6	18.9	18.9	19.4	19.4	20.0	19.9	20.3	21.0	21.3
Agricultural sciences	4.8	5.0	5.1	4.5	4.3	3.8	4.1	3.9	3.8	3.6
Psychology	14.7	14.8	14.3	13.5	13.2	13.4	12.9	12.9	12.8	13.0
Social sciences	15.5	15.3	14.6	14.8	14.6	14.8	14.9	14.6	14.7	15.1
Citizenship known										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	19.9	20.9	21.1	21.7	21.9	22.2	22.2	22.6	23.1	22.8
Aeronautical/astronautical .....	.7	.8	.8	.9	.9	.9	.9	1.0	1.0	1.0
Chemical	3.3	3.4	2.9	2.9	3.0	2.9	2.8	2.7	3.0	2.9
Civil	2.6	2.5	2.4	2.4	2.4	2.5	2.6	2.5	2.6	2.5
Electrical	4.7	5.2	5.5	5.8	6.0	6.1	6.4	6.5	6.3	6.4
Industrial .....	.6	.8	.7	.7	.8	.9	.9	1.1	1.0	.9
Materials/metallurgical	1.8	1.7	1.9	2.0	2.0	2.1	2.1	2.2	2.1	2.2
Mechanical	3.4	3.4	3.8	3.6	4.0	4.0	3.9	3.8	3.9	3.8
Other engineering	2.8	3.0	3.1	3.3	2.9	2.9	2.7	2.8	3.2	3.0
Sciences, total	80.1	79.1	78.9	78.3	78.1	77.8	77.8	77.4	76.9	77.2
Physical sciences, total	16.1	15.1	15.6	15.1	15.4	14.6	15.2	14.5	14.0	14.0
Astronomy .....	.6	.5	.6	.5	.6	.6	.6	.7	.7	.8
Chemistry	9.7	9.2	9.2	9.1	9.0	8.4	8.6	8.1	7.8	8.0
Physics	5.6	5.3	5.6	5.4	5.7	5.5	5.9	5.6	5.4	5.2
Other physical sciences .....	.1	.1	.1	.1	.1	.1	.1	.1	.0	.1
Earth, atmospheric, and ocean sciences	3.4	3.3	3.2	3.4	3.2	3.0	3.2	3.0	2.9	3.2
Mathematics	3.6	3.9	3.9	4.3	4.2	4.5	4.3	4.4	4.1	4.1
Computer sciences	2.6	2.9	3.1	3.4	3.6	3.5	3.4	3.8	3.4	3.3
Biological sciences	20.0	19.6	19.3	19.5	19.7	20.2	20.0	20.4	21.2	21.7
Agricultural sciences	4.9	5.0	5.1	4.5	4.3	3.9	4.2	4.0	3.9	3.6
Psychology	14.5	14.2	14.2	13.4	13.1	13.4	12.8	12.9	12.9	12.4
Social sciences	15.2	15.1	14.6	14.8	14.6	14.8	14.8	14.5	14.6	14.9

See explanatory information, if any, and SOURCE at end of table.

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
U.S. citizens										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	13.3	13.8	13.8	14.3	14.5	14.9	14.6	15.4	16.6	17.1
Aeronautical/astronautical .....	.5	.5	.6	.7	.7	.8	.7	.9	1.1	1.0
Chemical	2.7	2.8	2.4	2.4	2.2	2.2	1.9	1.9	2.0	2.0
Civil	1.4	1.4	1.3	1.2	1.1	1.1	1.3	1.3	1.4	1.6
Electrical	3.0	3.3	3.5	3.8	4.1	4.2	4.2	4.4	4.5	4.7
Industrial .....	.3	.4	.4	.3	.4	.6	.6	.7	.7	.6
Materials/metallurgical	1.3	1.3	1.3	1.4	1.4	1.5	1.4	1.5	1.6	1.7
Mechanical	1.9	1.9	2.1	2.0	2.4	2.3	2.4	2.5	2.8	2.9
Other engineering	2.3	2.2	2.2	2.4	2.2	2.2	2.0	2.2	2.6	2.6
Sciences, total	86.7	86.2	86.2	85.7	85.5	85.1	85.4	84.6	83.4	82.9
Physical sciences, total	15.9	14.7	15.3	14.5	14.8	14.0	14.5	13.8	13.3	13.4
Astronomy .....	.7	.6	.6	.6	.7	.7	.7	.8	.9	1.0
Chemistry	10.3	9.6	9.9	9.2	9.1	8.5	8.5	8.0	7.5	7.8
Physics	4.7	4.4	4.7	4.6	4.9	4.7	5.2	4.9	4.9	4.6
Other physical sciences .....	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Earth, atmospheric, and ocean sciences	3.7	3.8	3.6	4.0	3.5	3.1	3.3	3.1	3.0	3.3
Mathematics	2.6	2.9	2.6	3.2	3.1	3.3	3.3	3.6	3.1	3.3
Computer sciences	2.1	2.5	2.5	2.7	2.9	2.8	2.8	3.1	2.7	2.6
Biological sciences	23.4	23.2	22.5	22.7	22.9	23.1	22.6	22.6	22.7	23.0
Agricultural sciences	4.0	4.5	4.4	3.9	3.5	3.1	3.4	3.2	3.0	2.9
Psychology	20.0	19.9	20.6	20.2	19.9	20.6	20.1	19.9	20.0	18.3
Social sciences	15.1	14.6	14.6	14.7	14.9	15.1	15.3	15.4	15.6	16.0
Non-U.S. citizens										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	34.4	35.4	34.3	33.8	33.3	33.4	33.1	33.1	32.5	32.5
Aeronautical/astronautical	1.0	1.4	1.2	1.1	1.3	1.1	1.1	1.0	1.0	1.2
Chemical	4.7	4.6	3.9	3.7	4.2	4.0	4.0	3.9	4.4	4.5
Civil	5.1	4.9	4.4	4.4	4.3	4.5	4.5	4.2	4.3	4.0
Electrical	8.6	9.2	9.1	9.2	8.9	8.9	9.5	9.5	9.0	9.2
Industrial	1.3	1.5	1.2	1.3	1.5	1.4	1.3	1.6	1.3	1.4
Materials/metallurgical	3.0	2.7	3.0	3.0	2.8	3.0	3.0	3.2	2.9	3.0
Mechanical	6.7	6.5	6.9	6.2	6.5	6.6	6.1	5.9	5.4	5.5
Other engineering	4.0	4.6	4.6	4.9	3.8	3.9	3.7	3.8	4.2	3.7
Sciences, total	65.6	64.6	65.7	66.2	66.7	66.6	66.9	66.9	67.5	67.5
Physical sciences, total	16.6	15.9	16.0	16.1	16.3	15.4	16.1	15.6	15.1	14.9
Astronomy .....	.4	.5	.4	.4	.4	.4	.4	.5	.5	.4
Chemistry	8.5	8.4	8.1	9.0	8.9	8.2	8.7	8.4	8.4	8.3
Physics	7.6	7.0	7.4	6.6	7.0	6.7	6.9	6.6	6.2	6.2
Other physical sciences .....	.1	.0	.1	.1	.1	.1	.1	.1	.0	.0
Earth, atmospheric, and ocean sciences	2.6	2.3	2.4	2.4	2.9	2.8	2.9	2.8	2.8	3.1
Mathematics	5.8	5.8	6.1	6.3	6.0	6.3	5.7	5.7	5.5	5.6
Computer sciences	3.6	3.6	4.2	4.5	4.6	4.4	4.4	4.7	4.3	4.4
Biological sciences	12.3	12.1	13.4	14.2	14.8	15.9	16.4	17.2	19.0	19.4
Agricultural sciences	6.9	6.1	6.4	5.5	5.6	5.1	5.2	5.1	5.0	4.7
Psychology	2.4	2.5	2.4	2.2	2.6	2.4	2.2	2.5	2.6	2.4
Social sciences	15.4	16.2	14.7	14.9	14.1	14.3	14.0	13.3	13.1	13.1

See explanatory information, if any, and SOURCE at end of table.

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1988-97**

Page 3 of 4

Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Non-U.S. citizens with permanent visas										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	32.4	32.5	32.5	30.2	29.7	28.6	27.7	27.2	26.3	26.2
Aeronautical/astronautical	1.2	.7	.7	.9	.6	.4	.7	.4	.6	.6
Chemical	4.4	5.5	4.2	4.0	4.3	3.2	2.9	2.6	2.5	3.8
Civil	4.1	5.2	5.1	3.1	3.7	3.6	2.9	2.9	3.1	3.4
Electrical	9.3	8.8	9.0	10.3	8.8	10.1	8.8	8.2	7.3	8.4
Industrial	1.0	.7	1.1	1.4	1.4	1.0	1.0	1.2	1.0	.8
Materials/metallurgical	2.4	1.9	2.2	2.3	2.5	2.4	2.6	3.2	3.1	1.9
Mechanical	6.3	5.9	5.8	4.8	5.4	5.3	5.9	5.1	5.1	3.6
Other engineering	3.7	3.7	4.5	3.5	3.0	2.7	2.9	3.6	3.8	3.7
Sciences, total	67.6	67.5	67.5	69.8	70.3	71.4	72.3	72.8	73.7	73.8
Physical sciences, total	12.3	13.1	14.4	14.0	14.5	14.4	19.6	20.1	16.4	16.0
Astronomy .....	.6	.4	.3	.2	.4	.3	.3	.6	.4	.3
Chemistry	6.5	7.6	8.3	8.6	8.2	7.8	10.8	11.0	9.7	9.0
Physics	4.9	5.1	5.4	5.3	5.9	6.2	8.4	8.4	6.2	6.7
Other physical sciences .....	.4	.1	.3	.0	.0	.1	.1	.1	.0	.0
Earth, atmospheric, and ocean sciences	2.4	2.6	1.6	2.0	2.5	2.5	3.5	3.3	3.2	3.1
Mathematics	3.9	3.1	3.9	4.3	3.8	5.7	5.1	6.2	5.3	4.4
Computer sciences	3.7	5.2	4.6	4.9	4.8	5.1	3.9	3.8	3.1	3.9
Biological sciences	17.0	16.2	15.8	16.4	17.4	18.5	22.0	23.8	27.2	25.5
Agricultural sciences	6.3	4.0	4.8	4.4	4.5	3.0	3.2	3.0	3.4	3.7
Psychology	5.4	4.8	6.1	5.1	6.2	5.5	2.8	2.9	3.5	4.0
Social sciences	16.6	18.6	16.4	18.8	16.6	16.7	12.2	9.7	11.7	13.3
Non-U.S. citizens with temporary visas										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	34.9	36.0	34.7	34.5	33.9	34.3	35.3	36.1	34.8	34.5
Aeronautical/astronautical	1.0	1.6	1.3	1.2	1.4	1.2	1.3	1.3	1.2	1.4
Chemical	4.8	4.4	3.8	3.7	4.2	4.1	4.5	4.5	5.1	4.7
Civil	5.4	4.9	4.3	4.6	4.4	4.7	5.1	4.8	4.7	4.2
Electrical	8.5	9.2	9.2	9.0	9.0	8.7	9.8	10.2	9.6	9.5
Industrial	1.3	1.7	1.2	1.2	1.5	1.5	1.4	1.9	1.5	1.6
Materials/metallurgical	3.1	2.8	3.2	3.2	2.9	3.1	3.1	3.2	2.8	3.3
Mechanical	6.7	6.6	7.1	6.5	6.6	6.8	6.1	6.2	5.5	6.1
Other engineering	4.1	4.8	4.6	5.1	4.0	4.2	4.0	3.9	4.4	3.7
Sciences, total	65.1	64.0	65.3	65.5	66.1	65.7	64.7	63.9	65.2	65.5
Physical sciences, total	17.6	16.5	16.3	16.5	16.6	15.6	14.7	13.3	14.6	14.6
Astronomy .....	.4	.5	.5	.5	.3	.4	.4	.4	.5	.5
Chemistry	9.0	8.6	8.1	9.0	9.0	8.3	7.9	7.0	7.9	8.1
Physics	8.2	7.4	7.7	6.9	7.2	6.8	6.3	5.7	6.2	6.0
Other physical sciences .....	.1	.0	.1	.1	.1	.0	.1	.1	.0	.0
Earth, atmospheric, and ocean sciences	2.7	2.3	2.6	2.4	2.9	2.9	2.6	2.5	2.6	3.1
Mathematics	6.2	6.4	6.5	6.6	6.3	6.4	6.0	5.5	5.7	6.0
Computer sciences	3.6	3.3	4.1	4.4	4.5	4.3	4.6	5.2	4.8	4.5
Biological sciences	11.3	11.3	13.0	13.9	14.3	15.4	14.1	13.9	15.9	17.4
Agricultural sciences	7.0	6.6	6.7	5.7	5.8	5.5	6.0	6.1	5.7	5.0
Psychology	1.7	2.0	1.8	1.7	1.9	1.8	2.0	2.3	2.3	1.8
Social sciences	15.1	15.7	14.4	14.3	13.6	13.9	14.8	15.1	13.6	13.1

See explanatory information, if any, and SOURCE at end of table.

**Table 4a. Percentage distribution of science and engineering doctorates awarded,
by major field and citizenship status of recipients: 1988-97**

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Field of study	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Citizenship unknown										
Science and engineering, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering, total	21.4	21.4	29.0	22.9	27.3	28.7	23.3	26.1	25.7	19.8
Aeronautical/astronautical	1.4	.7	1.7	.4	3.0	1.2	.8	.9	1.2	.6
Chemical	2.7	1.8	1.7	2.4	1.2	3.2	1.8	1.7	.9	1.8
Civil	2.1	1.7	3.0	1.9	3.4	2.2	1.4	1.8	2.9	2.0
Electrical	5.9	5.7	8.0	6.2	6.1	5.9	7.8	8.8	8.1	5.7
Industrial .....	.7	.7	.3	.6	.6	.8	.0	.7	.7	.8
Materials/metallurgical	1.5	1.9	1.7	1.7	2.5	2.5	1.8	2.4	2.0	1.5
Mechanical	3.7	4.4	5.5	4.9	3.6	5.5	3.6	4.6	4.2	2.8
Other engineering	3.4	4.5	7.1	4.7	6.9	7.3	6.0	5.1	5.6	4.5
Sciences, total	78.6	78.6	71.0	77.1	72.7	71.3	76.7	73.9	74.2	80.2
Physical sciences, total	14.8	13.7	11.8	14.7	12.2	14.0	16.3	12.8	16.4	11.8
Astronomy .....	.4	.3	.2	.4	.0	.0	.0	.7	.1	.3
Chemistry	8.1	7.2	7.8	9.4	6.9	8.2	8.9	8.3	9.2	6.8
Physics	5.9	6.1	3.5	4.7	5.0	5.7	6.6	3.9	7.0	4.5
Other physical sciences .....	.4	.2	.2	.2	.3	.1	.8	.0	.0	.2
Earth, atmospheric, and ocean sciences	2.9	3.1	3.4	2.6	2.7	4.2	2.8	2.4	3.9	3.3
Mathematics	3.9	4.9	4.9	3.2	6.2	5.2	2.6	6.8	4.4	4.2
Computer sciences .....	.9	2.2	3.3	1.9	2.3	3.0	3.4	2.9	4.0	3.6
Biological sciences	15.5	11.9	10.2	14.1	11.2	12.4	11.5	14.3	14.7	15.9
Agricultural sciences	4.0	4.6	5.0	3.8	2.8	2.0	1.8	1.7	2.4	3.9
Psychology	17.4	20.9	18.4	21.2	18.9	14.7	18.5	14.9	10.5	20.4
Social sciences	19.3	17.4	13.8	15.6	16.4	15.9	19.7	18.2	18.0	17.1

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total non-U.S. citizens, S&E										
Total foreign citizenship	6,066	6,515	7,768	8,926	9,475	9,754	10,542	10,503	10,809	9,209
North America, total	355	403	446	525	515	506	547	505	530	447
Canada	203	220	253	297	304	285	275	274	276	240
Caribbean	28	29	36	54	44	38	61	60	51	44
Central America	32	34	53	46	52	44	69	43	45	34
Mexico	92	120	104	128	115	139	142	128	158	129
South America, total	294	297	343	387	394	394	408	359	455	366
Argentina	38	43	65	62	86	53	56	49	66	67
Brazil	94	100	100	119	133	151	157	137	205	134
Chile	45	47	50	54	48	52	42	38	36	27
Colombia	46	27	40	49	37	35	48	45	42	38
South America, other	71	80	88	103	90	103	105	90	106	100
Europe, total	691	709	801	972	950	1,104	1,150	1,254	1,258	1,240
Belgium	21	15	31	43	42	24	21	32	25	16
England, United Kingdom	116	96	100	132	137	154	128	132	117	86
France	53	51	65	67	77	93	96	83	68	73
Germany	78	102	123	118	124	164	196	208	170	175
Europe, other	423	445	482	612	570	669	709	799	878	890
East Asia, total	2,242	2,563	3,604	4,486	4,865	5,010	5,484	5,487	5,594	4,412
Taiwan	786	857	1,012	1,127	1,242	1,213	1,301	1,240	1,149	990
China, People's Republic of	480	620	1,150	1,793	2,045	2,227	2,531	2,752	2,952	2,223
Hong Kong	81	93	94	121	109	109	95	90	109	82
Japan	104	106	147	125	132	132	182	155	167	146
Korea	621	753	979	1,114	1,127	1,123	1,150	1,005	979	817
Thailand	98	76	111	93	87	77	97	113	119	80
East Asia, other	72	58	111	113	123	129	128	132	119	74
West Asia, total	1,233	1,308	1,654	1,670	1,891	1,903	2,077	2,181	2,139	1,814
India	520	536	711	752	861	933	1,065	1,207	1,258	1,163
Iran	173	198	258	227	200	203	174	173	147	106
Iraq	36	24	27	24	34	17	22	14	9	7
Israel	66	69	79	89	87	89	109	86	84	55
Lebanon	39	51	45	55	62	50	73	56	53	29
Saudi Arabia	52	61	63	67	76	46	76	71	74	57
Turkey	81	78	106	100	132	136	144	166	146	141
West Asia, other	266	291	365	356	439	429	414	408	368	256
Pacific/Australasia, total	156	166	175	216	220	227	231	231	232	191
Australia	39	41	46	35	40	47	56	61	42	47
Indonesia	43	52	53	69	78	78	83	83	69	60
New Zealand	17	27	16	23	16	24	15	26	32	21
Philippines	56	45	59	89	83	74	75	59	89	62
Pacific/Australasia, other	1	1	1	0	3	4	2	2	0	1
Africa, total	450	446	539	500	510	474	583	423	441	320
Egypt	115	109	160	112	101	88	104	78	89	68
Nigeria	87	59	83	83	68	55	60	53	39	21
Africa, other	248	278	296	305	341	331	419	292	313	231
Country unknown	645	623	206	170	130	136	62	63	160	419

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total non-U.S. citizens, engineering										
Total foreign citizenship	2,087	2,305	2,666	3,021	3,154	3,253	3,491	3,480	3,508	2,989
North America, total	63	76	84	84	73	82	90	82	96	81
Canada	28	38	41	54	46	42	36	41	45	43
Caribbean	2	5	7	3	5	4	14	7	8	12
Central America	6	5	11	5	6	9	10	8	6	2
Mexico	27	28	25	22	16	27	30	26	37	24
South America, total	69	73	84	86	87	97	111	88	117	88
Argentina	6	6	12	12	14	10	7	7	8	15
Brazil	25	30	31	34	31	46	49	46	65	39
Chile	9	9	11	8	10	5	8	8	8	1
Colombia	9	5	8	11	9	8	12	10	7	4
South America, other	20	23	22	21	23	28	35	17	29	29
Europe, total	171	198	205	200	202	244	257	297	235	232
Belgium	6	5	12	9	10	7	7	12	4	4
England, United Kingdom	11	14	14	14	17	18	14	20	10	11
France	22	18	27	19	25	32	32	24	25	11
Germany	11	17	15	8	18	23	29	37	16	26
Europe, other	121	144	137	150	132	164	175	204	180	180
East Asia, total	889	988	1,266	1,629	1,701	1,733	1,887	1,869	1,849	1,430
Taiwan	400	427	476	597	637	592	670	616	572	419
China, People's Republic of	132	159	328	477	508	543	656	773	801	620
Hong Kong	33	38	30	30	37	32	14	20	31	13
Japan	24	19	17	29	25	23	46	30	32	37
Korea	257	308	360	435	437	484	429	344	323	290
Thailand	24	16	21	20	21	18	34	38	43	35
East Asia, other	19	21	34	41	36	41	38	48	47	16
West Asia, total	532	577	740	768	863	889	908	961	981	879
India	255	251	314	357	405	448	480	572	618	578
Iran	81	110	139	123	110	95	92	85	66	58
Iraq	8	9	14	11	14	6	9	8	2	5
Israel	25	19	22	27	26	23	17	19	20	12
Lebanon	18	25	35	38	37	27	45	31	21	9
Saudi Arabia	14	26	22	26	31	19	28	25	34	27
Turkey	42	52	59	64	81	74	64	73	72	86
West Asia, other	89	85	135	122	159	197	173	148	148	104
Pacific/Australasia, total	24	26	25	45	48	43	50	44	38	45
Australia	2	2	3	7	11	6	11	7	6	8
Indonesia	11	12	14	19	24	29	28	29	15	21
New Zealand	4	3	2	2	1	0	1	3	2	6
Philippines	7	9	6	17	11	7	9	5	15	10
Pacific/Australasia, other	0	0	0	0	1	1	1	0	0	0
Africa, total	138	140	187	155	138	121	168	122	143	103
Egypt	47	49	82	57	46	48	63	48	59	44
Nigeria	21	11	23	20	11	12	6	14	11	7
Africa, other	70	80	82	78	81	61	99	60	73	52
Country unknown	201	227	75	54	42	44	20	17	49	131

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

Page 3 of 9

Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total non-U.S. citizens, sciences										
Total foreign citizenship	3,979	4,210	5,102	5,905	6,321	6,501	7,051	7,023	7,301	6,220
North America, total	292	327	362	441	442	424	457	423	434	366
Canada	175	182	212	243	258	243	239	233	231	197
Caribbean	26	24	29	51	39	34	47	53	43	32
Central America	26	29	42	41	46	35	59	35	39	32
Mexico	65	92	79	106	99	112	112	102	121	105
South America, total	225	224	259	301	307	297	297	271	338	278
Argentina	32	37	53	50	72	43	49	42	58	52
Brazil	69	70	69	85	102	105	108	91	140	95
Chile	36	38	39	46	38	47	34	30	28	26
Colombia	37	22	32	38	28	27	36	35	35	34
South America, other	51	57	66	82	67	75	70	73	77	71
Europe, total	520	511	596	772	748	860	893	957	1,023	1,008
Belgium	15	10	19	34	32	17	14	20	21	12
England, United Kingdom	105	82	86	118	120	136	114	112	107	75
France	31	33	38	48	52	61	64	59	43	62
Germany	67	85	108	110	106	141	167	171	154	149
Europe, other	302	301	345	462	438	505	534	595	698	710
East Asia, total	1,353	1,575	2,338	2,857	3,164	3,277	3,597	3,618	3,745	2,982
Taiwan	386	430	536	530	605	621	631	624	577	571
China, People's Republic of	348	461	822	1,316	1,537	1,684	1,875	1,979	2,151	1,603
Hong Kong	48	55	64	91	72	77	81	70	78	69
Japan	80	87	130	96	107	109	136	125	135	109
Korea	364	445	619	679	690	639	721	661	656	527
Thailand	74	60	90	73	66	59	63	75	76	45
East Asia, other	53	37	77	72	87	88	90	84	72	58
West Asia, total	701	731	914	902	1,028	1,014	1,169	1,220	1,158	935
India	265	285	397	395	456	485	585	635	640	585
Iran	92	88	119	104	90	108	82	88	81	48
Iraq	28	15	13	13	20	11	13	6	7	2
Israel	41	50	57	62	61	66	92	67	64	43
Lebanon	21	26	10	17	25	23	28	25	32	20
Saudi Arabia	38	35	41	41	45	27	48	46	40	30
Turkey	39	26	47	36	51	62	80	93	74	55
West Asia, other	177	206	230	234	280	232	241	260	220	152
Pacific/Australasia, total	132	140	150	171	172	184	181	187	194	146
Australia	37	39	43	28	29	41	45	54	36	39
Indonesia	32	40	39	50	54	49	55	54	54	39
New Zealand	13	24	14	21	15	24	14	23	30	15
Philippines	49	36	53	72	72	67	66	54	74	52
Pacific/Australasia, other	1	1	1	0	2	3	1	2	0	1
Africa, total	312	306	352	345	372	353	415	301	298	217
Egypt	68	60	78	55	55	40	41	30	30	24
Nigeria	66	48	60	63	57	43	54	39	28	14
Africa, other	178	198	214	227	260	270	320	232	240	179
Country unknown	444	396	131	116	88	92	42	46	111	288

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Permanent visas, S&E										
Total foreign citizenship	1,130	1,124	1,197	1,285	1,383	1,641	3,021	3,509	3,007	2,261
North America, total	87	88	99	126	118	120	119	135	119	103
Canada	53	55	55	75	76	71	58	78	70	53
Caribbean	15	8	16	19	16	15	28	26	27	19
Central America	4	9	11	11	8	6	14	8	2	8
Mexico	15	16	17	21	18	28	19	23	20	23
South America, total	48	41	67	62	74	63	64	51	64	68
Argentina	8	4	11	16	17	17	13	9	17	19
Brazil	5	9	13	8	21	11	16	11	11	7
Chile	5	6	7	6	6	7	4	9	5	7
Colombia	14	7	11	11	9	5	13	8	10	6
South America, other	16	15	25	21	21	23	18	14	21	29
Europe, total	171	159	179	211	210	258	275	284	312	330
Belgium	4	3	6	8	8	8	4	7	8	7
England, United Kingdom	46	36	38	52	58	47	56	49	50	38
France	11	14	15	12	10	19	16	15	16	23
Germany	22	24	38	25	39	45	62	53	51	42
Europe, other	88	82	82	114	95	139	137	160	187	220
East Asia, total	250	264	323	407	486	663	2,001	2,487	1,935	1,227
Taiwan	136	142	147	160	172	155	178	165	136	142
China, People's Republic of	26	36	54	100	162	352	1,642	2,169	1,628	949
Hong Kong	15	15	12	16	28	20	20	15	18	16
Japan	10	13	23	20	18	20	30	19	23	23
Korea	49	52	70	91	83	91	99	87	93	81
Thailand	5	4	2	8	9	11	11	10	14	4
East Asia, other	9	2	15	12	14	14	21	22	23	12
West Asia, total	244	279	346	287	340	359	375	383	389	311
India	84	94	119	108	148	142	173	168	199	186
Iran	77	93	125	83	82	100	65	84	74	36
Iraq	8	2	3	3	8	4	7	5	4	1
Israel	16	20	11	18	15	22	41	21	17	16
Lebanon	10	14	18	10	6	11	12	11	11	6
Saudi Arabia	4	6	6	2	7	4	7	4	10	1
Turkey	15	11	17	11	20	18	15	19	23	21
West Asia, other	30	39	47	52	54	58	55	71	51	44
Pacific/Australasia, total	29	19	25	34	23	35	40	43	32	31
Australia	11	8	12	9	9	10	13	10	13	9
Indonesia	5	5	3	9	5	6	13	16	3	9
New Zealand	6	1	4	5	1	4	5	3	4	5
Philippines	7	5	6	11	7	14	8	13	12	7
Pacific/Australasia, other	0	0	0	0	1	1	1	1	0	1
Africa, total	81	80	92	103	95	100	123	91	82	83
Egypt	18	13	14	13	9	9	12	12	11	12
Nigeria	25	20	30	35	34	30	33	32	17	7
Africa, other	38	47	48	55	52	61	78	47	54	64
Country unknown	220	194	66	55	37	43	24	35	74	108

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Permanent visas, engineering										
Total foreign citizenship	366	365	389	388	411	469	838	956	792	593
North America, total	16	12	20	17	13	16	14	23	15	14
Canada	8	9	9	14	8	9	6	9	6	7
Caribbean	1	0	4	0	2	2	4	3	5	4
Central America	2	0	3	2	2	1	2	4	0	1
Mexico	5	3	4	1	1	4	2	7	4	2
South America, total	12	7	12	12	14	8	13	7	9	12
Argentina	0	0	2	5	4	2	1	1	3	5
Brazil	0	1	2	2	2	1	2	2	3	2
Chile	1	1	0	0	1	0	1	1	0	0
Colombia	5	2	1	1	2	1	4	1	1	2
South America, other	6	3	7	4	5	4	5	2	2	3
Europe, total	28	30	31	33	33	42	49	68	58	70
Belgium	2	0	1	2	2	2	1	1	1	3
England, United Kingdom	5	5	5	3	8	4	7	9	4	4
France	2	2	6	4	3	4	5	3	5	3
Germany	1	3	4	0	5	3	11	8	6	6
Europe, other	18	20	15	25	15	29	25	47	42	54
East Asia, total	112	105	128	166	163	221	576	696	515	318
Taiwan	71	67	69	88	80	73	89	76	77	57
China, People's Republic of	10	9	19	25	39	88	426	566	378	215
Hong Kong	5	5	5	7	10	10	7	5	9	5
Japan	2	1	1	5	3	2	5	2	2	3
Korea	22	22	30	36	25	43	42	34	36	36
Thailand	0	0	0	1	2	1	1	4	3	0
East Asia, other	2	1	4	4	4	4	6	9	10	2
West Asia, total	105	122	150	118	144	151	140	119	152	119
India	36	35	42	44	57	56	61	55	78	64
Iran	39	55	61	42	44	43	28	29	29	17
Iraq	3	1	1	0	2	2	5	3	0	1
Israel	6	2	3	4	5	6	6	0	0	2
Lebanon	7	7	13	4	4	6	5	3	8	2
Saudi Arabia	0	1	2	0	1	2	3	3	3	0
Turkey	8	5	10	5	10	6	6	7	12	15
West Asia, other	6	16	18	19	21	30	26	19	22	18
Pacific/Australasia, total	6	3	5	5	7	6	12	9	4	8
Australia	1	0	0	2	4	1	4	0	2	1
Indonesia	3	2	3	3	2	4	7	7	0	5
New Zealand	2	0	1	0	0	0	1	0	0	2
Philippines	0	1	1	0	0	1	0	2	2	0
Pacific/Australasia, other	0	0	0	0	1	0	0	0	0	0
Africa, total	17	17	21	25	23	14	28	28	24	22
Egypt	4	4	7	4	3	3	4	9	4	5
Nigeria	7	3	5	9	6	3	2	10	5	1
Africa, other	6	10	9	12	14	8	22	9	15	16
Country unknown	70	69	22	12	14	11	6	6	15	30

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Permanent visas, sciences										
Total foreign citizenship	764	759	808	897	972	1,172	2,183	2,553	2,215	1,668
North America, total	71	76	79	109	105	104	105	112	104	89
Canada	45	46	46	61	68	62	52	69	64	46
Caribbean	14	8	12	19	14	13	24	23	22	15
Central America	2	9	8	9	6	5	12	4	2	7
Mexico	10	13	13	20	17	24	17	16	16	21
South America, total	36	34	55	50	60	55	51	44	55	56
Argentina	8	4	9	11	13	15	12	8	14	14
Brazil	5	8	11	6	19	10	14	9	8	5
Chile	4	5	7	6	5	7	3	8	5	7
Colombia	9	5	10	10	7	4	9	7	9	4
South America, other	10	12	18	17	16	19	13	12	19	26
Europe, total	143	129	148	178	177	216	226	216	254	260
Belgium	2	3	5	7	6	6	3	6	7	4
England, United Kingdom	41	31	33	49	50	43	49	40	46	34
France	9	12	9	8	7	15	11	12	11	20
Germany	21	21	34	25	34	42	51	45	45	36
Europe, other	70	62	67	89	80	110	112	113	145	166
East Asia, total	138	159	195	241	323	442	1,425	1,791	1,420	909
Taiwan	65	75	78	72	92	82	89	89	59	85
China, People's Republic of	16	27	35	75	123	264	1,216	1,603	1,250	734
Hong Kong	10	10	7	9	18	10	13	10	9	11
Japan	8	12	22	15	15	18	25	17	21	20
Korea	27	30	40	55	58	48	57	53	57	45
Thailand	5	4	2	7	7	10	10	6	11	4
East Asia, other	7	1	11	8	10	10	15	13	13	10
West Asia, total	139	157	196	169	196	208	235	264	237	192
India	48	59	77	64	91	86	112	113	121	122
Iran	38	38	64	41	38	57	37	55	45	19
Iraq	5	1	2	3	6	2	2	2	4	0
Israel	10	18	8	14	10	16	35	21	17	14
Lebanon	3	7	5	6	2	5	7	8	3	4
Saudi Arabia	4	5	4	2	6	2	4	1	7	1
Turkey	7	6	7	6	10	12	9	12	11	6
West Asia, other	24	23	29	33	33	28	29	52	29	26
Pacific/Australasia, total	23	16	20	29	16	29	28	34	28	23
Australia	10	8	12	7	5	9	9	10	11	8
Indonesia	2	3	0	6	3	2	6	9	3	4
New Zealand	4	1	3	5	1	4	4	3	4	3
Philippines	7	4	5	11	7	13	8	11	10	7
Pacific/Australasia, other	0	0	0	0	0	1	1	1	0	1
Africa, total	64	63	71	78	72	86	95	63	58	61
Egypt	14	9	7	9	6	6	8	3	7	7
Nigeria	18	17	25	26	28	27	31	22	12	6
Africa, other	32	37	39	43	38	53	56	38	39	48
Country unknown	150	125	44	43	23	32	18	29	59	78

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Temporary visas, S&E										
Total foreign citizenship	4,936	5,391	6,571	7,641	8,092	8,113	7,521	6,994	7,802	6,948
North America, total	268	315	347	399	397	386	428	370	411	344
Canada	150	165	198	222	228	214	217	196	206	187
Caribbean	13	21	20	35	28	23	33	34	24	25
Central America	28	25	42	35	44	38	55	35	43	26
Mexico	77	104	87	107	97	111	123	105	138	106
South America, total	246	256	276	325	320	331	344	308	391	298
Argentina	30	39	54	46	69	36	43	40	49	48
Brazil	89	91	87	111	112	140	141	126	194	127
Chile	40	41	43	48	42	45	38	29	31	20
Colombia	32	20	29	38	28	30	35	37	32	32
South America, other	55	65	63	82	69	80	87	76	85	71
Europe, total	520	550	622	761	740	846	875	970	946	910
Belgium	17	12	25	35	34	16	17	25	17	9
England, United Kingdom	70	60	62	80	79	107	72	83	67	48
France	42	37	50	55	67	74	80	68	52	50
Germany	56	78	85	93	85	119	134	155	119	133
Europe, other	335	363	400	498	475	530	572	639	691	670
East Asia, total	1,992	2,299	3,281	4,079	4,379	4,347	3,483	3,000	3,659	3,185
Taiwan	650	715	865	967	1,070	1,058	1,123	1,075	1,013	848
China, People's Republic of	454	584	1,096	1,693	1,883	1,875	889	583	1,324	1,274
Hong Kong	66	78	82	105	81	89	75	75	91	66
Japan	94	93	124	105	114	112	152	136	144	123
Korea	572	701	909	1,023	1,044	1,032	1,051	918	886	736
Thailand	93	72	109	85	78	66	86	103	105	76
East Asia, other	63	56	96	101	109	115	107	110	96	62
West Asia, total	989	1,029	1,308	1,383	1,551	1,544	1,702	1,798	1,750	1,503
India	436	442	592	644	713	791	892	1,039	1,059	977
Iran	96	105	133	144	118	103	109	89	73	70
Iraq	28	22	24	21	26	13	15	9	5	6
Israel	50	49	68	71	72	67	68	65	67	39
Lebanon	29	37	27	45	56	39	61	45	42	23
Saudi Arabia	48	55	57	65	69	42	69	67	64	56
Turkey	66	67	89	89	112	118	129	147	123	120
West Asia, other	236	252	318	304	385	371	359	337	317	212
Pacific/Australasia, total	127	147	150	182	197	192	191	188	200	160
Australia	28	33	34	26	31	37	43	51	29	38
Indonesia	38	47	50	60	73	72	70	67	66	51
New Zealand	11	26	12	18	15	20	10	23	28	16
Philippines	49	40	53	78	76	60	67	46	77	55
Pacific/Australasia, other	1	1	1	0	2	3	1	1	0	0
Africa, total	369	366	447	397	415	374	460	332	359	237
Egypt	97	96	146	99	92	79	92	66	78	56
Nigeria	62	39	53	48	34	25	27	21	22	14
Africa, other	210	231	248	250	289	270	341	245	259	167
Country unknown	425	429	140	115	93	93	38	28	86	311

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Temporary visas, engineering										
Total foreign citizenship										
North America, total	1,721	1,940	2,277	2,633	2,743	2,784	2,653	2,524	2,716	2,396
Canada	47	64	64	67	60	66	76	59	81	67
20	29	32	40	38	33	30	32	39	39	36
Caribbean	1	5	3	3	3	2	10	4	3	8
Central America	4	5	8	3	4	8	8	4	6	1
Mexico	22	25	21	21	15	23	28	19	33	22
South America, total	57	66	72	74	73	89	98	81	108	76
Argentina	6	6	10	7	10	8	6	6	5	10
Brazil	25	29	29	32	29	45	47	44	62	37
Chile	8	8	11	8	9	5	7	7	8	1
Colombia	4	3	7	10	7	7	8	9	6	2
South America, other	14	20	15	17	18	24	30	15	27	26
Europe, total	143	168	174	167	169	202	208	229	177	162
Belgium	4	5	11	8	8	5	6	11	3	1
England, United Kingdom	6	9	9	11	9	14	7	11	6	7
France	20	16	21	15	22	28	27	21	20	8
Germany	10	14	11	8	13	20	18	29	10	20
Europe, other	103	124	122	125	117	135	150	157	138	126
East Asia, total	777	883	1,138	1,463	1,538	1,512	1,311	1,173	1,334	1,112
Taiwan	329	360	407	509	557	519	581	540	495	362
China, People's Republic of	122	150	309	452	469	455	230	207	423	405
Hong Kong	28	33	25	23	27	22	7	15	22	8
Japan	22	18	16	24	22	21	41	28	30	34
Korea	235	286	330	399	412	441	387	310	287	254
Thailand	24	16	21	19	19	17	33	34	40	35
East Asia, other	17	20	30	37	32	37	32	39	37	14
West Asia, total	427	455	590	650	719	738	768	842	829	760
India	219	216	272	313	348	392	419	517	540	514
Iran	42	55	78	81	66	52	64	56	37	41
Iraq	5	8	13	11	12	4	4	5	2	4
Israel	19	17	19	23	21	17	11	19	20	10
Lebanon	11	18	22	34	33	21	40	28	13	7
Saudi Arabia	14	25	20	26	30	17	25	22	31	27
Turkey	34	47	49	59	71	68	58	66	60	71
West Asia, other	83	69	117	103	138	167	147	129	126	86
Pacific/Australasia, total	18	23	20	40	41	37	38	35	34	37
Australia	1	2	3	5	7	5	7	7	4	7
Indonesia	8	10	11	16	22	25	21	22	15	16
New Zealand	2	3	1	2	1	0	0	3	2	4
Philippines	7	8	5	17	11	6	9	3	13	10
Pacific/Australasia, other	0	0	0	0	0	1	1	0	0	0
Africa, total	121	123	166	130	115	107	140	94	119	81
Egypt	43	45	75	53	43	45	59	39	55	39
Nigeria	14	8	18	11	5	9	4	4	6	6
Africa, other	64	70	73	66	67	53	77	51	58	36
Country unknown	131	158	53	42	28	33	14	11	34	101

See explanatory information, if any, and SOURCE at end of table.

**Table 5. Non-U.S. citizens awarded science and engineering (S&E) doctorates,
by country of citizenship, visa type, and year of doctorate: 1988-97**

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Country of citizenship	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Temporary visas, sciences										
Total foreign citizenship	3,215	3,451	4,294	5,008	5,349	5,329	4,868	4,470	5,086	4,552
North America, total	221	251	283	332	337	320	352	311	330	277
Canada	130	136	166	182	190	181	187	164	167	151
Caribbean	12	16	17	32	25	21	23	30	21	17
Central America	24	20	34	32	40	30	47	31	37	25
Mexico	55	79	66	86	82	88	95	86	105	84
South America, total	189	190	204	251	247	242	246	227	283	222
Argentina	24	33	44	39	59	28	37	34	44	38
Brazil	64	62	58	79	83	95	94	82	132	90
Chile	32	33	32	40	33	40	31	22	23	19
Colombia	28	17	22	28	21	23	27	28	26	30
South America, other	41	45	48	65	51	56	57	61	58	45
Europe, total	377	382	448	594	571	644	667	741	769	748
Belgium	13	7	14	27	26	11	11	14	14	8
England, United Kingdom	64	51	53	69	70	93	65	72	61	41
France	22	21	29	40	45	46	53	47	32	42
Germany	46	64	74	85	72	99	116	126	109	113
Europe, other	232	239	278	373	358	395	422	482	553	544
East Asia, total	1,215	1,416	2,143	2,616	2,841	2,835	2,172	1,827	2,325	2,073
Taiwan	321	355	458	458	513	539	542	535	518	486
China, People's Republic of	332	434	787	1,241	1,414	1,420	659	376	901	869
Hong Kong	38	45	57	82	54	67	68	60	69	58
Japan	72	75	108	81	92	91	111	108	114	89
Korea	337	415	579	624	632	591	664	608	599	482
Thailand	69	56	88	66	59	49	53	69	65	41
East Asia, other	46	36	66	64	77	78	75	71	59	48
West Asia, total	562	574	718	733	832	806	934	956	921	743
India	217	226	320	331	365	399	473	522	519	463
Iran	54	50	55	63	52	51	45	33	36	29
Iraq	23	14	11	10	14	9	11	4	3	2
Israel	31	32	49	48	51	50	57	46	47	29
Lebanon	18	19	5	11	23	18	21	17	29	16
Saudi Arabia	34	30	37	39	39	25	44	45	33	29
Turkey	32	20	40	30	41	50	71	81	63	49
West Asia, other	153	183	201	201	247	204	212	208	191	126
Pacific/Australasia, total	109	124	130	142	156	155	153	153	166	123
Australia	27	31	31	21	24	32	36	44	25	31
Indonesia	30	37	39	44	51	47	49	45	51	35
New Zealand	9	23	11	16	14	20	10	20	26	12
Philippines	42	32	48	61	65	54	58	43	64	45
Pacific/Australasia, other	1	1	1	0	2	2	0	1	0	0
Africa, total	248	243	281	267	300	267	320	238	240	156
Egypt	54	51	71	46	49	34	33	27	23	17
Nigeria	48	31	35	37	29	16	23	17	16	8
Africa, other	146	161	175	184	222	217	264	194	201	131
Country unknown	294	271	87	73	65	60	24	17	52	210

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
Total, all institutions	-	26,847	6,052	764	653	1,695	1,010	1,930	3,711	1,576	2,115	20
Alabama, total	25	327	83	17	4	16	11	35	37	18	18	1
Alabama A&M University	246	12	0	0	0	0	0	0	8	8	0	0
Auburn University	73	129	42	16	3	8	1	14	9	3	6	0
United States Sports Academy	326	0	0	0	0	0	0	0	0	0	0	0
University of Alabama	134	53	11	1	1	1	4	4	8	1	7	0
University of Alabama Birmingham ..	89	93	7	0	0	0	0	7	8	3	5	0
University of Alabama Huntsville ..	177	31	23	0	0	7	6	10	4	3	0	1
University of South Alabama	262	9	0	0	0	0	0	0	0	0	0	0
Alaska, total	52	20	1	0	0	0	1	0	1	1	0	0
University of Alaska Fairbanks	212	20	1	0	0	0	1	0	1	1	0	0
Arizona, total	18	486	123	8	12	45	15	43	85	43	42	0
Arizona State University Main	54	162	54	2	5	22	11	14	27	5	22	0
Northern Arizona University	229	17	0	0	0	0	0	0	0	0	0	0
University of Arizona	19	307	69	6	7	23	4	29	58	38	20	0
Arkansas, total	42	68	16	6	3	4	1	2	8	0	8	0
Arkansas State U Main Campus	326	0	0	0	0	0	0	0	0	0	0	0
U of Arkansas	129	56	15	6	3	3	1	2	8	0	8	0
U of Arkansas Little Rock	316	1	1	0	0	1	0	0	0	0	0	0
U of Arkansas for Med Sciences	252	11	0	0	0	0	0	0	0	0	0	0
California, total	1	3,415	762	73	79	280	140	190	496	228	265	3
Biola University	270	7	0	0	0	0	0	0	0	0	0	0
CA Inst Integral Studies	284	5	0	0	0	0	0	0	0	0	0	0
CA Inst Technology	49	173	68	13	5	18	10	22	64	36	28	0
CA Sch Prof Psych Berkeley	117	61	0	0	0	0	0	0	0	0	0	0
CA Sch Prof Psych Fresno	177	31	0	0	0	0	0	0	0	0	0	0
CA Sch Prof Psych Los Angeles	132	54	0	0	0	0	0	0	0	0	0	0
CA Sch Prof Psych San Diego	102	78	0	0	0	0	0	0	0	0	0	0
Claremont Graduate University	147	47	0	0	0	0	0	0	0	0	0	0
Fielding Institute, The	146	48	0	0	0	0	0	0	0	0	0	0
Fuller Theological Seminary CA	222	18	0	0	0	0	0	0	0	0	0	0
Golden Gate Baptist Seminary	326	0	0	0	0	0	0	0	0	0	0	0
Graduate Theological Union	304	2	0	0	0	0	0	0	0	0	0	0
Loma Linda University	240	14	0	0	0	0	0	0	0	0	0	0
Loma Linda U La Sierra Campus	326	0	0	0	0	0	0	0	0	0	0	0
Naval Postgraduate School	212	20	8	0	0	2	2	4	3	3	0	0
Pacific Grad School of Psych	196	24	0	0	0	0	0	0	0	0	0	0
Pepperdine University Malibu	326	0	0	0	0	0	0	0	0	0	0	0
Rand Grad Sch of Policy Studies	270	7	0	0	0	0	0	0	0	0	0	0
San Diego State University	209	21	2	0	0	0	0	2	1	0	1	0
Santa Clara University	300	3	3	0	0	1	2	0	0	0	0	0
School of Theology at Claremont	326	0	0	0	0	0	0	0	0	0	0	0
Scripps Research Institute, The	212	20	0	0	0	0	0	0	11	0	11	0
Stanford University	8	443	185	11	22	74	24	54	61	34	27	0
United States International U	155	42	0	0	0	0	0	0	0	0	0	0
U of California Berkeley	2	541	148	12	18	45	44	29	90	39	49	2
U of California Davis	21	292	47	5	9	7	13	13	44	23	21	0
U of California Irvine	46	176	39	4	6	13	7	9	27	7	20	0
U of California Los Angeles	10	414	85	11	13	33	14	14	53	27	26	0
U of California Riverside	89	93	0	0	0	0	0	0	14	6	8	0
U of California San Diego	39	209	37	1	1	12	6	17	39	20	18	1
U of California San Francisco	94	88	2	0	0	0	0	2	17	0	17	0
U of California Santa Barbara	57	159	55	7	0	24	13	11	31	14	17	0
U of California Santa Cruz	108	70	9	0	0	9	0	0	20	12	8	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	Earth, atmos., & ocean sciences	Mathematics	Computer sciences	Biological & agricultural sciences			Psy-chology	Social sciences	Non-S&E, total	Grand total, all fields
				Total	Bio-logical	Agri-cul-tural				
Total, all institutions	862	1,112	889	6,683	5,717	966	3,489	4,049	15,858	42,705
Alabama, total	4	18	11	117	88	29	30	27	225	552
Alabama A&M University	0	0	0	4	0	4	0	0	5	17
Auburn University	0	12	4	37	12	25	14	11	37	166
United States Sports Academy	0	0	0	0	0	0	0	0	1	1
University of Alabama	1	2	3	5	5	0	9	14	131	184
University of Alabama Birmingham ..	0	3	3	63	63	0	7	2	45	138
University of Alabama Huntsville ..	2	1	1	0	0	0	0	0	0	31
University of South Alabama	1	0	0	8	8	0	0	0	6	15
Alaska, total	10	1	0	6	4	2	0	1	0	20
University of Alaska Fairbanks	10	1	0	6	4	2	0	1	0	20
Arizona, total	33	11	17	104	83	21	30	83	308	794
Arizona State University Main	4	3	7	20	20	0	19	28	117	279
Northern Arizona University	0	0	0	5	4	1	0	12	53	70
University of Arizona	29	8	10	79	59	20	11	43	138	445
Arkansas, total	0	1	0	35	22	13	8	0	68	136
Arkansas State U Main Campus	0	0	0	0	0	0	0	0	5	5
U of Arkansas	0	1	0	24	11	13	8	0	57	113
U of Arkansas Little Rock	0	0	0	0	0	0	0	0	6	7
U of Arkansas for Med Sciences	0	0	0	11	11	0	0	0	0	11
California, total	114	116	111	738	702	36	561	517	1,497	4,912
Biola University	0	0	0	0	0	0	7	0	9	16
CA Inst Integral Studies	0	0	0	0	0	0	5	0	3	8
CA Inst Technology	12	6	4	17	17	0	0	2	0	173
CA Sch Prof Psych Berkeley	0	0	0	0	0	0	61	0	2	63
CA Sch Prof Psych Fresno	0	0	0	0	0	0	31	0	0	31
CA Sch Prof Psych Los Angeles	0	0	0	0	0	0	54	0	2	56
CA Sch Prof Psych San Diego	0	0	0	0	0	0	78	0	0	78
Claremont Graduate University	0	4	5	3	3	0	8	27	64	111
Fielding Institute, The	0	0	0	0	0	0	40	8	24	72
Fuller Theological Seminary CA	0	0	0	0	0	0	15	3	22	40
Golden Gate Baptist Seminary	0	0	0	0	0	0	0	0	1	1
Graduate Theological Union	0	0	0	0	0	0	0	2	18	20
Loma Linda University	0	0	0	14	14	0	0	0	4	18
Loma Linda U La Sierra Campus	0	0	0	0	0	0	0	0	2	2
Naval Postgraduate School	5	2	2	0	0	0	0	0	0	20
Pacific Grad School of Psych	0	0	0	0	0	0	24	0	23	47
Pepperdine University Malibu	0	0	0	0	0	0	0	0	33	33
Rand Grad Sch of Policy Studies	0	0	0	0	0	0	0	7	1	8
San Diego State University	0	0	0	7	7	0	11	0	10	31
Santa Clara University	0	0	0	0	0	0	0	0	0	3
School of Theology at Claremont	0	0	0	0	0	0	0	0	1	1
Scripps Research Institute, The	0	0	0	9	9	0	0	0	0	20
Stanford University	15	21	22	68	68	0	12	59	148	591
United States International U	0	0	0	0	0	0	42	0	18	60
U of California Berkeley	6	37	16	101	89	12	18	125	218	759
U of California Davis	15	7	5	141	124	17	7	26	57	349
U of California Irvine	0	4	13	52	52	0	12	29	43	219
U of California Los Angeles	23	18	16	97	96	1	43	79	256	670
U of California Riverside	2	6	0	37	31	6	15	19	31	124
U of California San Diego	20	4	10	65	65	0	10	24	52	261
U of California San Francisco	0	0	0	62	62	0	0	7	35	123
U of California Santa Barbara	5	4	3	16	16	0	20	25	65	224
U of California Santa Cruz	5	0	3	14	14	0	8	11	23	93

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
California, continued:												
University of La Verne	326	0	0	0	0	0	0	0	0	0	0	0
University of the Pacific	304	2	0	0	0	0	0	0	0	0	0	0
University of San Diego	326	0	0	0	0	0	0	0	0	0	0	0
University of San Francisco	326	0	0	0	0	0	0	0	0	0	0	0
University of Southern CA	28	241	74	9	5	42	5	13	21	7	14	0
Wright Institute, All Campuses	246	12	0	0	0	0	0	0	0	0	0	0
Colorado, total	16	566	144	21	40	34	5	44	85	40	44	1
Colorado School of Mines	136	52	25	9	0	0	0	16	5	3	2	0
Colorado State University	51	170	35	4	17	8	2	4	31	9	22	0
University of Colorado Boulder	20	294	84	8	23	26	3	24	46	27	18	1
University of Denver	191	26	0	0	0	0	0	0	2	1	1	0
University of Northern Colorado	196	24	0	0	0	0	0	0	1	0	1	0
Connecticut, total	23	395	56	12	4	19	9	12	60	24	36	0
University of Connecticut	51	170	38	9	4	12	6	7	19	6	13	0
University of New Haven	326	0	0	0	0	0	0	0	0	0	0	0
Wesleyan University	267	8	0	0	0	0	0	0	4	1	3	0
Yale University	35	217	18	3	0	7	3	5	37	17	20	0
Delaware, total	38	130	48	14	9	7	8	10	20	8	11	1
University of Delaware	71	130	48	14	9	7	8	10	20	8	11	1
Wilmington College	326	0	0	0	0	0	0	0	0	0	0	0
District of Columbia, total	26	319	37	0	1	7	11	18	26	10	16	0
American University	158	41	0	0	0	0	0	0	4	4	0	0
Catholic University of America	154	43	9	0	0	1	8	0	3	3	0	0
Gallaudet University	294	4	0	0	0	0	0	0	0	0	0	0
George Washington University	84	98	26	0	1	4	3	18	4	1	3	0
Georgetown University	103	76	0	0	0	0	0	0	8	0	8	0
Howard University	127	57	2	0	0	2	0	0	7	2	5	0
Florida, total	9	828	187	5	19	75	28	60	70	29	39	2
Barry University	304	2	0	0	0	0	0	0	0	0	0	0
Caribbean Ctr Adv Studies Miami	188	27	0	0	0	0	0	0	0	0	0	0
FL Agricultural and Mechanical U	294	4	0	0	0	0	0	0	0	0	0	0
Florida Atlantic University	191	26	16	0	1	6	5	4	1	1	0	0
Florida Institute of Technology	205	22	12	0	1	10	1	0	2	0	2	0
Florida International University	232	16	1	0	0	0	1	0	0	0	0	0
Florida State University	84	98	6	0	0	1	4	1	12	8	4	0
Nova Southeastern University	77	122	0	0	0	0	0	0	0	0	0	0
University of Central Florida	173	33	28	0	2	15	7	4	3	3	0	0
University of Florida	18	332	96	3	13	31	9	40	41	12	28	1
University of Miami	111	66	9	0	0	3	1	5	7	5	1	1
University of Sarasota	316	1	0	0	0	0	0	0	0	0	0	0
University of South Florida	100	79	19	2	2	9	0	6	4	0	4	0
Georgia, total	17	543	155	15	11	55	22	52	68	21	47	0
Clark Atlanta University	294	4	0	0	0	0	0	0	0	0	0	0
Emory University	93	89	0	0	0	0	0	0	19	1	18	0
Georgia Inst of Tech	35	217	151	15	11	55	22	48	31	18	13	0
Georgia Southern University	326	0	0	0	0	0	0	0	0	0	0	0
Georgia State University	150	46	0	0	0	0	0	0	4	0	4	0
Inst of Paper Science & Tech	270	7	3	0	0	0	0	3	0	0	0	0
Medical College of Georgia	270	7	0	0	0	0	0	0	0	0	0	0
Mercer University	316	1	0	0	0	0	0	0	0	0	0	0
University of Georgia	50	172	1	0	0	0	0	1	14	2	12	0
Hawaii, total	38	130	6	0	1	4	0	1	11	7	4	0
University of Hawaii at Manoa	71	130	6	0	1	4	0	1	11	7	4	0
Idaho, total	46	57	11	2	0	1	0	8	15	4	11	0
Idaho State University	257	10	1	0	0	0	0	1	0	0	0	0
University of Idaho	147	47	10	2	0	1	0	7	15	4	11	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	Earth, atmos., & ocean sciences	Mathem- atics	Com- puter scien- ces	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
California, continued:										
University of La Verne	0	0	0	0	0	0	0	0	45	45
University of the Pacific	0	0	0	2	2	0	0	0	10	12
University of San Diego	0	0	0	0	0	0	0	0	21	21
University of San Francisco	0	0	0	0	0	0	0	0	91	91
University of Southern CA	6	3	12	33	33	0	28	64	155	396
Wright Institute, All Campuses	0	0	0	0	0	0	12	0	10	22
Colorado, total	51	30	11	112	93	19	53	80	246	812
Colorado School of Mines	17	4	1	0	0	0	0	0	0	52
Colorado State University	16	8	2	44	25	19	10	24	32	202
University of Colorado Boulder	18	12	6	61	61	0	18	49	105	399
University of Denver	0	1	2	3	3	0	11	7	52	78
University of Northern Colorado	0	5	0	4	4	0	14	0	57	81
Connecticut, total	10	26	9	115	107	8	38	81	195	590
University of Connecticut	5	6	3	39	38	1	30	30	81	251
University of New Haven	0	0	0	0	0	0	0	0	2	2
Wesleyan University	0	1	0	3	3	0	0	0	3	11
Yale University	5	19	6	73	66	7	8	51	109	326
Delaware, total	9	7	5	13	8	5	10	18	35	165
University of Delaware	9	7	5	13	8	5	10	18	31	161
Wilmington College	0	0	0	0	0	0	0	0	4	4
District of Columbia, total	1	8	11	63	63	0	55	118	174	493
American University	0	1	0	0	0	0	5	31	6	47
Catholic University of America	0	0	0	3	3	0	15	13	54	97
Gallaudet University	0	0	0	0	0	0	4	0	2	6
George Washington University	1	2	11	20	20	0	14	20	71	169
Georgetown University	0	0	0	28	28	0	0	40	18	94
Howard University	0	5	0	12	12	0	17	14	23	80
Florida, total	35	23	27	175	127	48	225	86	980	1,808
Barry University	0	0	0	0	0	0	1	1	11	13
Caribbean Ctr Adv Studies Miami	0	0	0	0	0	0	27	0	2	29
FL Agricultural and Mechanical U	0	0	0	4	4	0	0	0	0	4
Florida Atlantic University	0	1	3	1	1	0	3	1	26	52
Florida Institute of Technology	1	2	2	2	2	0	1	0	8	30
Florida International University	0	0	1	3	3	0	2	9	36	52
Florida State University	20	5	4	11	11	0	22	18	214	312
Nova Southeastern University	1	0	10	2	2	0	105	4	417	539
University of Central Florida	0	0	1	0	0	0	1	0	42	75
University of Florida	0	6	5	113	65	48	29	42	93	425
University of Miami	7	3	0	16	16	0	14	10	33	99
University of Sarasota	0	0	0	0	0	0	1	0	50	51
University of South Florida	6	6	1	23	23	0	19	1	48	127
Georgia, total	12	13	12	151	115	36	87	45	331	874
Clark Atlanta University	0	0	0	0	0	0	0	4	22	26
Emory University	0	4	0	38	38	0	16	12	59	148
Georgia Inst of Tech	9	3	12	5	5	0	5	1	7	224
Georgia Southern University	0	0	0	0	0	0	0	0	6	6
Georgia State University	0	0	0	9	9	0	20	13	70	116
Inst of Paper Science & Tech	0	0	0	4	0	4	0	0	0	7
Medical College of Georgia	0	0	0	7	7	0	0	0	10	17
Mercer University	0	0	0	1	1	0	0	0	1	2
University of Georgia	3	6	0	87	55	32	46	15	156	328
Hawaii, total	9	1	2	28	22	6	11	62	46	176
University of Hawaii at Manoa	9	1	2	28	22	6	11	62	46	176
Idaho, total	0	5	2	17	10	7	0	7	29	86
Idaho State University	0	2	0	3	3	0	0	4	8	18
University of Idaho	0	3	2	14	7	7	0	3	21	68

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
Illinois, total	5	1,347	303	29	33	95	44	102	202	94	108	0
De Paul University	236	15	0	0	0	0	0	0	0	0	0	0
Finch U Hlth Sci/Chgo Med Sch	243	13	0	0	0	0	0	0	0	0	0	0
Illinois Institute Technology	114	63	32	8	6	8	3	7	2	2	0	0
Illinois State University	270	7	0	0	0	0	0	0	0	0	0	0
Inst for Clinical Social Work	316	1	0	0	0	0	0	0	0	0	0	0
Loyola University of Chicago	143	49	0	0	0	0	0	0	7	0	7	0
Lutheran Sch Theology at Chicago ..	326	0	0	0	0	0	0	0	0	0	0	0
Northern Illinois University	188	27	0	0	0	0	0	0	5	0	5	0
Northwestern University	30	232	78	7	6	13	10	42	36	14	22	0
Roosevelt University	326	0	0	0	0	0	0	0	0	0	0	0
Rush University	300	3	0	0	0	0	0	0	0	0	0	0
Southern Illinois U Carbondale	118	60	5	1	0	1	0	3	4	1	3	0
Southern Illinois U Edwardsville	326	0	0	0	0	0	0	0	0	0	0	0
University of Chicago	31	231	2	1	0	0	0	1	54	37	17	0
U of Illinois Chicago	67	135	22	3	0	9	9	1	17	5	12	0
U of Illinois Urbana-Champaign	3	511	164	9	21	64	22	48	77	35	42	0
Indiana, total	12	681	183	26	30	50	31	46	119	42	77	0
Ball State University	232	16	0	0	0	0	0	0	0	0	0	0
Indiana State University	232	16	0	0	0	0	0	0	0	0	0	0
Indiana U Bloomington	45	180	0	0	0	0	0	0	37	13	24	0
Indiana U Purdue U Indianapolis	326	0	0	0	0	0	0	0	0	0	0	0
Purdue University	13	378	149	22	24	37	24	42	60	17	43	0
University of Notre Dame	92	91	34	4	6	13	7	4	22	12	10	0
Iowa, total	22	401	104	13	15	16	23	37	62	18	44	0
Drake University	326	0	0	0	0	0	0	0	0	0	0	0
Iowa State University	37	214	50	8	5	10	12	15	33	6	27	0
Maharishi U of Management	270	7	0	0	0	0	0	0	3	3	0	0
University of Iowa	46	176	50	5	10	6	11	18	26	9	17	0
University of Northern Iowa	294	4	4	0	0	0	0	4	0	0	0	0
Kansas, total	29	284	38	4	6	10	9	9	52	17	35	0
Kansas State University	74	127	11	2	2	1	3	3	19	10	9	0
University of Kansas	69	134	11	2	4	4	1	0	31	7	24	0
Wichita State University	200	23	16	0	0	5	5	6	2	0	2	0
Kentucky, total	32	214	39	10	3	5	8	13	27	4	23	0
Southern Baptist Theological Sem ..	304	2	0	0	0	0	0	0	0	0	0	0
Spalding University	326	0	0	0	0	0	0	0	0	0	0	0
University of Kentucky	56	160	30	6	3	3	8	10	18	4	14	0
University of Louisville	136	52	9	4	0	2	0	3	9	0	9	0
Louisiana, total	27	318	53	13	10	10	7	13	40	13	26	1
Grambling State University	326	0	0	0	0	0	0	0	0	0	0	0
LA St U & A&M College	60	156	23	4	5	6	3	5	25	12	12	1
LA St U Shreveport	262	9	0	0	0	0	0	0	0	0	0	0
LA St U Medical Center	236	15	0	0	0	0	0	0	0	0	0	0
Louisiana Tech University	284	5	4	0	0	0	1	3	1	0	1	0
New Orleans Baptist Theol Sem	304	2	0	0	0	0	0	0	0	0	0	0
Northeast Louisiana University	294	4	0	0	0	0	0	0	1	0	1	0
Southern U A&M Col Baton Rouge ..	326	0	0	0	0	0	0	0	0	0	0	0
Tulane University	91	92	24	9	5	2	3	5	4	0	4	0
University of New Orleans	229	17	0	0	0	0	0	0	9	1	8	0
U of Southwestern Louisiana	222	18	2	0	0	2	0	0	0	0	0	0
Maine, total	49	41	8	3	2	0	0	3	7	5	2	0
University of Maine	158	41	8	3	2	0	0	3	7	5	2	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	Earth, atmos., & ocean sciences	Mathem- atics	Com- puter sci- ences	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
Illinois, total	17	59	69	291	259	32	168	238	898	2,245
De Paul University	0	0	0	0	0	0	15	0	4	19
Finch U Hlth Sci/Chgo Med Sch	0	0	0	7	7	0	6	0	1	14
Illinois Institute Technology	0	0	14	1	1	0	14	0	1	64
Illinois State University	0	0	0	5	5	0	0	2	39	46
Inst for Clinical Social Work	0	0	0	0	0	0	1	0	9	10
Loyola University of Chicago	0	0	0	17	17	0	22	3	55	104
Lutheran Sch Theology at Chicago ..	0	0	0	0	0	0	0	0	2	2
Northern Illinois University	0	3	0	4	4	0	7	8	84	111
Northwestern University	1	7	8	40	40	0	21	41	122	354
Roosevelt University	0	0	0	0	0	0	0	0	11	11
Rush University	0	0	0	3	3	0	0	0	12	15
Southern Illinois U Carbondale	2	2	1	11	8	3	17	18	99	159
Southern Illinois U Edwardsville	0	0	0	0	0	0	0	0	3	3
University of Chicago	5	18	3	49	49	0	18	82	130	361
U of Illinois Chicago	0	9	8	53	53	0	13	13	101	236
U of Illinois Urbana-Champaign	9	20	35	101	72	29	34	71	225	736
Indiana, total	12	36	19	136	111	25	69	107	428	1,109
Ball State University	0	0	0	1	1	0	13	2	32	48
Indiana State University	0	0	0	4	4	0	11	1	18	34
Indiana U Bloomington	7	7	9	47	47	0	14	59	214	394
Indiana U Purdue U Indianapolis	0	0	0	0	0	0	0	0	7	7
Purdue University	5	21	10	76	51	25	25	32	131	509
University of Notre Dame	0	8	0	8	8	0	6	13	26	117
Iowa, total	5	19	8	128	99	29	37	38	251	652
Drake University	0	0	0	0	0	0	0	0	9	9
Iowa State University	3	7	5	90	63	27	9	17	40	254
Maharishi U of Management	0	0	0	2	2	0	2	0	9	16
University of Iowa	2	12	3	36	34	2	26	21	188	364
University of Northern Iowa	0	0	0	0	0	0	0	0	5	9
Kansas, total	4	12	3	94	53	41	39	42	186	470
Kansas State University	0	5	1	61	20	41	8	22	47	174
University of Kansas	4	4	2	33	33	0	29	20	131	265
Wichita State University	0	3	0	0	0	0	2	0	8	31
Kentucky, total	1	16	5	75	65	10	22	29	124	338
Southern Baptist Theological Sem	0	0	0	0	0	0	1	1	23	25
Spalding University	0	0	0	0	0	0	0	0	11	11
University of Kentucky	1	16	4	56	46	10	12	23	80	240
University of Louisville	0	0	1	19	19	0	9	5	10	62
Louisiana, total	10	17	20	117	92	25	23	38	219	537
Grambling State University	0	0	0	0	0	0	0	0	9	9
LA St U & A&M College	10	9	10	49	24	25	13	17	76	232
LA St U Shreveport	0	0	0	9	9	0	0	0	0	9
LA St U Medical Center	0	0	0	15	15	0	0	0	10	25
Louisiana Tech University	0	0	0	0	0	0	0	0	5	10
New Orleans Baptist Theol Sem	0	0	0	0	0	0	2	0	32	34
Northeast Louisiana University	0	0	0	3	3	0	0	0	9	13
Southern U A&M Col Baton Rouge ..	0	0	0	0	0	0	0	0	1	1
Tulane University	0	2	6	36	36	0	7	13	36	128
University of New Orleans	0	0	0	0	0	0	1	7	27	44
U of Southwestern Louisiana	0	6	4	5	5	0	0	1	14	32
Maine, total	2	0	0	19	14	5	5	0	19	60
University of Maine	2	0	0	19	14	5	5	0	19	60

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
Maryland, total	14	676	134	7	15	47	26	39	87	53	34	0
Johns Hopkins University	33	224	40	2	7	8	10	13	23	14	9	0
Loyola College	280	6	0	0	0	0	0	0	0	0	0	0
Morgan State University	326	0	0	0	0	0	0	0	0	0	0	0
Peabody Inst of Johns Hopkins U	326	0	0	0	0	0	0	0	0	0	0	0
Uniformed Services U of Hlth Sci	280	6	0	0	0	0	0	0	0	0	0	0
U of Maryland Baltimore	171	34	0	0	0	0	0	0	3	0	3	0
U of Maryland Baltimore County	129	56	6	0	0	3	3	0	8	3	5	0
U of Maryland College Park	16	350	88	5	8	36	13	26	53	36	17	0
Massachusetts, total	4	1,478	317	52	15	81	59	110	243	136	103	4
Boston College	141	50	0	0	0	0	0	0	9	5	4	0
Boston University	59	157	21	0	0	7	3	11	22	14	7	1
Brandeis University	106	71	1	0	0	0	0	1	12	4	8	0
Clark University	183	29	0	0	0	0	0	0	3	3	0	0
Harvard University	17	342	10	0	0	0	3	7	50	26	24	0
MA Col Pharmacy & Allied Health	316	1	0	0	0	0	0	0	1	0	1	0
Massachusetts Institute of Tech	5	459	205	31	9	44	43	78	79	49	27	3
New England Conserv of Music	326	0	0	0	0	0	0	0	0	0	0	0
Northeastern University	121	59	20	1	3	10	1	5	11	8	3	0
Simmons College	304	2	0	0	0	0	0	0	0	0	0	0
Smith College	316	1	0	0	0	0	0	0	0	0	0	0
Springfield College	326	0	0	0	0	0	0	0	0	0	0	0
Tufts University	118	60	7	1	0	1	3	2	9	3	6	0
U of Massachusetts Amherst	53	167	32	11	3	15	2	1	20	6	14	0
U of Massachusetts Boston	257	10	0	0	0	0	0	0	0	0	0	0
U of Massachusetts Lowell	139	51	12	6	0	3	2	1	25	16	9	0
U of Massachusetts Worcester	270	7	0	0	0	0	0	0	0	0	0	0
Worcester Polytechnic Institute	246	12	9	2	0	1	2	4	2	2	0	0
Michigan, total	8	970	273	28	21	70	64	90	141	61	78	2
Andrews University	270	7	0	0	0	0	0	0	0	0	0	0
Eastern Michigan University	326	0	0	0	0	0	0	0	0	0	0	0
Michigan State University	22	284	47	10	7	12	11	7	39	16	23	0
Michigan Technological U	158	41	24	1	2	1	11	9	8	7	1	0
Oakland University	284	5	1	0	0	0	0	1	0	0	0	0
University of Detroit Mercy	222	18	0	0	0	0	0	0	0	0	0	0
University of Michigan Ann Arbor	7	444	170	15	10	48	37	60	67	32	33	2
Wayne State University	65	138	31	2	2	9	5	13	25	4	21	0
Western Michigan University	173	33	0	0	0	0	0	0	2	2	0	0
Minnesota, total	21	471	106	20	14	17	22	33	64	16	48	0
Luther NW Theological Seminary	326	0	0	0	0	0	0	0	0	0	0	0
Mayo Sch Health-Related Sciences ..	212	20	0	0	0	0	0	0	0	0	0	0
U of Minnesota Twin Cities	9	433	105	19	14	17	22	33	64	16	48	0
University of St Thomas	326	0	0	0	0	0	0	0	0	0	0	0
Walden University	222	18	1	1	0	0	0	0	0	0	0	0
Mississippi, total	36	152	23	0	3	2	4	14	22	4	18	0
Delta State University	326	0	0	0	0	0	0	0	0	0	0	0
Jackson State University	294	4	0	0	0	0	0	0	0	0	0	0
Mississippi State University	108	70	16	0	1	1	2	12	4	0	4	0
Reformed Theological Sem	316	1	0	0	0	0	0	0	0	0	0	0
U of Mississippi	179	30	7	0	2	1	2	2	7	4	3	0
U of Mississippi Med Ctr	284	5	0	0	0	0	0	0	0	0	0	0
U of Southern Mississippi	155	42	0	0	0	0	0	0	11	0	11	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	Earth, atmos., & ocean sciences	Mathem- atics	Com- puter sci- ences	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
Maryland, total	22	31	29	184	172	12	78	111	311	987
Johns Hopkins University	10	8	4	91	91	0	8	40	107	331
Loyola College	0	0	0	0	0	0	6	0	1	7
Morgan State University	0	0	0	0	0	0	0	0	5	5
Peabody Inst of Johns Hopkins U	0	0	0	0	0	0	0	0	12	12
Uniformed Services U of Hlth Sci	0	0	0	2	2	0	4	0	0	6
U of Maryland Baltimore	0	0	0	30	30	0	0	1	29	63
U of Maryland Baltimore County	0	5	5	9	9	0	14	9	2	58
U of Maryland College Park	12	18	20	52	40	12	46	61	155	505
Massachusetts, total	48	66	54	332	323	9	103	315	637	2,115
Boston College	0	0	0	8	8	0	15	18	55	105
Boston University	4	5	2	53	52	1	21	29	104	261
Brandeis University	0	5	1	18	18	0	2	32	31	102
Clark University	1	1	0	2	2	0	1	21	3	32
Harvard University	7	18	4	133	133	0	11	109	251	593
MA Col Pharmacy & Allied Health	0	0	0	0	0	0	0	0	2	3
Massachusetts Institute of Tech	33	25	16	41	41	0	7	53	26	485
New England Conserv of Music	0	0	0	0	0	0	0	0	1	1
Northeastern University	0	7	1	5	5	0	6	9	9	68
Simmons College	0	0	0	0	0	0	0	2	3	5
Smith College	0	0	0	0	0	0	0	1	9	10
Springfield College	0	0	0	0	0	0	0	0	3	3
Tufts University	0	2	0	23	23	0	8	11	10	70
U of Massachusetts Amherst	3	2	21	35	27	8	29	25	114	281
U of Massachusetts Boston	0	0	0	2	2	0	3	5	0	10
U of Massachusetts Lowell	0	0	9	5	5	0	0	0	16	67
U of Massachusetts Worcester	0	0	0	7	7	0	0	0	0	7
Worcester Polytechnic Institute	0	1	0	0	0	0	0	0	0	12
Michigan, total	20	43	35	201	163	38	123	134	477	1,447
Andrews University	0	1	0	1	1	0	5	0	19	26
Eastern Michigan University	0	0	0	0	0	0	0	0	4	4
Michigan State University	4	18	6	96	61	35	36	38	133	417
Michigan Technological U	2	0	0	7	6	1	0	0	5	46
Oakland University	0	0	3	1	1	0	0	0	3	8
University of Detroit Mercy	0	0	0	0	0	0	18	0	0	18
University of Michigan Ann Arbor	11	18	17	58	57	1	31	72	198	642
Wayne State University	0	2	8	38	37	1	18	16	94	232
Western Michigan University	3	4	1	0	0	0	15	8	21	54
Minnesota, total	9	17	18	140	99	41	54	63	391	862
Luther NW Theological Seminary	0	0	0	0	0	0	0	0	5	5
Mayo Sch Health-Related Sciences	0	0	0	20	20	0	0	0	0	20
U of Minnesota Twin Cities	9	17	18	120	79	41	39	61	275	708
University of St Thomas	0	0	0	0	0	0	0	0	22	22
Walden University	0	0	0	0	0	0	15	2	89	107
Mississippi, total	4	4	2	49	23	26	40	8	180	332
Delta State University	0	0	0	0	0	0	0	0	4	4
Jackson State University	3	0	0	0	0	0	0	1	5	9
Mississippi State University	0	2	2	38	12	26	2	6	42	112
Reformed Theological Sem	0	0	0	0	0	0	0	1	6	7
U of Mississippi	0	1	0	2	2	0	13	0	67	97
U of Mississippi Med Ctr	0	0	5	5	5	0	0	0	0	5
U of Southern Mississippi	1	1	0	4	4	0	25	0	56	98

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
Missouri, total	20	474	96	13	4	23	16	40	64	21	43	0
Concordia Seminary	326	0	0	0	0	0	0	0	0	0	0	0
Midwestern Baptist Theol Sem	326	0	0	0	0	0	0	0	0	0	0	0
St Louis University	139	51	0	0	0	0	0	0	0	0	0	0
University Missouri Columbia	57	159	29	5	0	10	7	7	15	3	12	0
University Missouri Kansas City	164	38	0	0	0	0	0	0	4	0	4	0
University Missouri Rolla	118	60	46	6	4	5	5	26	10	4	6	0
University Missouri St Louis	200	23	0	0	0	0	0	0	9	2	7	0
Washington University	63	143	21	2	0	8	4	7	26	12	14	0
Montana, total	44	59	2	0	0	0	1	1	21	10	11	0
Montana St University Bozeman	167	37	1	0	0	0	1	0	20	10	10	0
University of Montana	205	22	1	0	0	0	0	1	1	0	1	0
Nebraska, total	34	179	17	2	3	2	3	7	27	4	22	1
Creighton University	304	2	0	0	0	0	0	0	0	0	0	0
U of Nebraska at Lincoln	61	154	17	2	3	2	3	7	25	4	20	1
U of Nebraska at Omaha	316	1	0	0	0	0	0	0	0	0	0	0
U of Nebraska Medical Center	205	22	0	0	0	0	0	0	2	0	2	0
Nevada, total	51	24	3	0	1	1	1	0	3	3	0	0
University of Nevada-Las Vegas	252	11	2	0	1	0	1	0	1	1	0	0
University of Nevada-Reno	243	13	1	0	0	1	0	0	2	2	0	0
New Hampshire, total	40	94	15	2	1	5	2	5	16	10	6	0
Dartmouth College	152	44	6	0	0	2	0	4	11	7	4	0
University of New Hampshire	141	50	9	2	1	3	2	1	5	3	2	0
New Jersey, total	15	619	142	18	8	47	20	49	96	49	47	0
Drew University	316	1	0	0	0	0	0	0	0	0	0	0
Fairleigh Dickinson U	236	15	0	0	0	0	0	0	0	0	0	0
New Jersey Institute Technology	158	41	29	4	3	14	7	1	2	0	2	0
Princeton Theological Seminary	326	0	0	0	0	0	0	0	0	0	0	0
Princeton University	38	212	47	6	3	21	3	14	46	27	19	0
Rutgers St U NJ New Brunswick	24	270	52	6	1	7	9	29	33	17	16	0
Rutgers St U NJ Newark Campus	222	18	0	0	0	0	0	0	2	0	2	0
Seton Hall University	240	14	0	0	0	0	0	0	7	0	7	0
Stevens Institute of Technology	183	29	14	2	1	5	1	5	6	5	1	0
U of Medicine & Dentistry of NJ	221	19	0	0	0	0	0	0	0	0	0	0
New Mexico, total	37	142	32	6	4	10	4	8	31	20	11	0
New Mexico Inst Mining & Tech	304	2	0	0	0	0	0	0	0	0	0	0
New Mexico State University	152	44	13	3	2	4	1	3	9	7	2	0
U of New Mexico, All Campuses	86	96	19	3	2	6	3	5	22	13	9	0
New York, total	2	2,302	410	54	41	131	63	121	295	149	146	0
Adelphi University	179	30	0	0	0	0	0	0	0	0	0	0
Albany Medical College	236	15	0	0	0	0	0	0	0	0	0	0
Alfred University	267	8	8	0	0	0	0	8	0	0	0	0
Clarkson University	196	24	18	5	3	4	4	2	4	1	3	0
Columbia U in City of New York	23	283	35	6	3	12	4	10	37	20	17	0
Cornell U Endowed Colleges	12	382	93	9	6	26	13	39	57	28	29	0
Cornell U Medical Campus	173	33	0	0	0	0	0	0	0	0	0	0
CUNY Grad School & U Center	34	221	16	3	1	4	1	7	20	7	13	0
Fordham University	136	52	0	0	0	0	0	0	0	0	0	0
Hofstra University	212	20	0	0	0	0	0	0	0	0	0	0
Jewish Theological Sem America	326	0	0	0	0	0	0	0	0	0	0	0
Juilliard School	326	0	0	0	0	0	0	0	0	0	0	0
Long Island University Brooklyn	240	14	0	0	0	0	0	0	0	0	0	0
Manhattan School of Music	326	0	0	0	0	0	0	0	0	0	0	0
New School University	143	49	0	0	0	0	0	0	0	0	0	0
New York Medical College	267	8	0	0	0	0	0	0	0	0	0	0
New York University	67	135	4	0	0	0	0	0	12	3	9	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	Earth, atmos., & ocean sciences	Mathe- matics	Com- puter sci- ences	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
Missouri, total	4	23	6	130	116	14	87	64	292	766
Concordia Seminary	0	0	0	0	0	0	0	0	1	1
Midwestern Baptist Theol Sem	0	0	0	0	0	0	0	0	15	15
St Louis University	3	1	0	18	18	0	18	11	84	135
University Missouri Columbia	0	10	0	51	37	14	22	32	98	257
University Missouri Kansas City	0	2	0	2	2	0	29	1	53	91
University Missouri Rolla	0	0	4	0	0	0	0	0	0	60
University Missouri St Louis	0	0	0	4	4	0	7	3	6	29
Washington University	1	10	2	55	55	0	11	17	35	178
Montana, total	1	3	0	25	16	9	7	0	37	96
Montana St University Bozeman	0	1	0	15	10	5	0	0	30	67
University of Montana	1	2	0	10	6	4	7	0	7	29
Nebraska, total	3	8	5	65	38	27	25	29	135	314
Creighton University	0	0	0	2	2	0	0	0	1	3
U of Nebraska at Lincoln	3	8	5	44	17	27	24	28	121	275
U of Nebraska at Omaha	0	0	0	0	0	0	0	1	3	4
U of Nebraska Medical Center	0	0	0	19	19	0	1	0	10	32
Nevada, total	9	0	1	5	5	0	0	3	20	44
University of Nevada-Las Vegas	0	0	1	5	5	0	0	2	14	25
University of Nevada-Reno	9	0	0	0	0	0	0	1	6	19
New Hampshire, total	7	7	2	29	28	1	12	6	11	105
Dartmouth College	3	3	1	15	15	0	5	0	1	45
University of New Hampshire	4	4	1	14	13	1	7	6	10	60
New Jersey, total	27	42	25	145	128	17	57	85	284	903
Drew University	0	0	0	0	0	0	1	0	26	27
Fairleigh Dickinson U	0	0	0	0	0	0	15	0	1	16
New Jersey Institute Technology	3	0	7	0	0	0	0	0	1	42
Princeton Theological Seminary	0	0	0	0	0	0	0	0	17	17
Princeton University	11	23	3	22	22	0	8	52	81	293
Rutgers St U NJ New Brunswick	13	17	10	94	77	17	23	28	121	391
Rutgers St U NJ Newark Campus	0	0	1	10	10	0	1	4	11	29
Seton Hall University	0	0	0	0	0	0	7	0	21	35
Stevens Institute of Technology	0	2	4	0	0	0	2	1	3	32
U of Medicine & Dentistry of NJ	0	0	0	19	19	0	0	0	2	21
New Mexico, total	5	1	6	31	24	7	14	22	86	228
New Mexico Inst Mining & Tech	1	0	1	0	0	0	0	0	0	2
New Mexico State University	0	1	2	13	7	6	5	1	18	62
U of New Mexico, All Campuses	4	0	3	18	17	1	9	21	68	164
New York, total	65	108	81	551	496	55	346	446	1,314	3,616
Adelphi University	0	3	0	0	0	0	27	0	14	44
Albany Medical College	0	0	0	15	15	0	0	0	0	15
Alfred University	0	0	0	0	0	0	0	0	0	8
Clarkson University	0	1	0	1	1	0	0	0	0	24
Columbia U in City of New York	15	12	9	54	54	0	37	84	169	452
Cornell U Endowed Colleges	11	16	10	114	67	47	11	70	103	485
Cornell U Medical Campus	0	0	0	33	33	0	0	0	0	33
CUNY Grad School & U Center	3	8	11	46	46	0	49	68	91	312
Fordham University	0	0	0	5	5	0	31	16	72	124
Hofstra University	0	0	0	0	0	0	20	0	17	37
Jewish Theological Sem America	0	0	0	0	0	0	0	0	7	7
Juilliard School	0	0	0	0	0	0	0	0	7	7
Long Island University Brooklyn	0	0	0	0	0	0	14	0	0	14
Manhattan School of Music	0	0	0	0	0	0	0	0	12	12
New School University	0	1	0	0	0	0	0	17	6	55
New York Medical College	0	0	0	8	8	0	0	0	0	8
New York University	1	12	4	46	46	0	20	36	234	369

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
New York, continued:												
Pace University New York Campus ..	326	0	0	0	0	0	0	0	0	0	0	0
Polytechnic University	168	36	28	6	7	9	3	3	5	0	5	0
Rensselaer Polytechnic Institute	80	116	75	9	8	21	17	20	18	10	8	0
Rockefeller University	209	21	0	0	0	0	0	0	2	1	1	0
St John's U (Jamaica, NY)	191	26	0	0	0	0	0	0	0	0	0	0
SUNY at Albany	99	81	1	0	0	0	0	1	6	5	1	0
SUNY at Binghamton	108	70	13	0	0	7	3	3	2	0	2	0
SUNY at Buffalo	43	193	58	9	12	16	10	11	26	8	18	0
SUNY at Stony Brook	42	199	18	0	0	9	4	5	53	32	21	0
SUNY Col Environ Sci & Forestry	195	25	4	0	1	0	0	3	5	0	5	0
SUNY Col of Optometry	326	0	0	0	0	0	0	0	0	0	0	0
SUNY Health Sci Ctr Brooklyn	246	12	0	0	0	0	0	0	0	0	0	0
SUNY Health Sci Ctr Syracuse	252	11	0	0	0	0	0	0	0	0	0	0
Syracuse University	113	64	18	0	0	17	0	1	5	5	0	0
Teachers College Columbia U	304	2	0	0	0	0	0	0	0	0	0	0
Union College	326	0	0	0	0	0	0	0	0	0	0	0
Union Theological Seminary	326	0	0	0	0	0	0	0	0	0	0	0
University of Rochester	64	142	21	7	0	6	4	4	43	29	14	0
Yeshiva University	179	30	0	0	0	0	0	0	0	0	0	0
North Carolina, total	10	726	151	12	28	39	16	56	73	21	52	0
Duke University	41	200	48	0	11	11	10	16	18	7	11	0
East Carolina University	280	6	0	0	0	0	0	0	0	0	0	0
North Carolina State U Raleigh	29	239	97	12	15	28	6	36	12	6	6	0
U of North Carolina Chapel Hill	27	245	6	0	2	0	0	4	40	6	34	0
U of North Carolina Greensboro	232	16	0	0	0	0	0	0	0	0	0	0
Wake Forest University	212	20	0	0	0	0	0	0	3	2	1	0
North Dakota, total	47	50	6	1	0	1	1	3	8	1	7	0
North Dakota State University	164	38	5	0	0	1	1	3	7	0	7	0
University of North Dakota	246	12	1	1	0	0	0	0	1	1	0	0
Ohio, total	6	1,210	310	45	17	79	52	117	207	75	132	0
Air Force Institute Technology	173	33	22	0	0	12	1	9	9	9	0	0
Bowling Green State University	164	38	0	0	0	0	0	0	9	0	9	0
Case Western Reserve University	62	150	56	9	1	10	11	25	20	6	14	0
Cleveland State University	262	9	4	0	1	0	0	3	1	0	1	0
Hebrew Union Col-Jewish Inst Rel	326	0	0	0	0	0	0	0	0	0	0	0
Kent State University Geauga	106	71	0	0	0	0	0	0	8	5	3	0
Medical College of Ohio	191	26	0	0	0	0	0	0	0	0	0	0
Miami University Oxford Campus	183	29	0	0	0	0	0	0	10	0	10	0
Ohio State University	5	459	92	7	6	23	21	35	66	29	37	0
Ohio University	127	57	4	3	0	0	0	1	17	11	6	0
University of Akron	96	86	26	14	2	3	4	3	37	4	33	0
University of Cincinnati	44	181	73	11	6	19	9	28	22	6	16	0
University of Dayton	212	20	16	0	0	6	4	6	1	1	0	0
University of Toledo	158	41	16	1	1	5	2	7	7	4	3	0
Wright State University	257	10	1	0	0	1	0	0	0	0	0	0
Youngstown State University	326	0	0	0	0	0	0	0	0	0	0	0
Oklahoma, total	30	237	54	18	4	9	12	11	33	9	24	0
Oklahoma State University	86	96	17	0	2	5	3	7	14	5	9	0
University of Oklahoma Norman	79	118	24	7	2	4	7	4	19	4	15	0
University of Tulsa	200	23	13	11	0	0	2	0	0	0	0	0
Oregon, total	28	291	47	4	6	11	4	22	43	20	23	0
Oregon Grad Inst Science & Tech	196	24	12	0	0	5	0	7	2	1	1	0
Oregon Health Sciences U	222	18	0	0	0	0	0	0	0	0	0	0
Oregon State University	65	138	27	4	5	4	4	10	24	8	16	0
Portland State University	200	23	8	0	1	2	0	5	2	1	1	0
University of Oregon	94	88	0	0	0	0	0	0	15	10	5	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]
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State and institution	Earth, atmos., & ocean sciences	Mathem- atics	Com- puter scien- ces	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
New York, continued:										
Pace University New York Campus ..	0	0	0	0	0	0	0	0	2	2
Polytechnic University	0	1	2	0	0	0	0	0	0	36
Rensselaer Polytechnic Institute	1	7	9	2	2	0	0	4	12	128
Rockefeller University	0	0	0	19	19	0	0	0	0	21
St John's U (Jamaica, NY)	0	0	0	6	6	0	20	0	11	37
SUNY at Albany	3	4	7	8	8	0	17	35	54	135
SUNY at Binghamton	4	9	2	5	5	0	8	27	18	88
SUNY at Buffalo	4	5	8	42	42	0	22	28	123	316
SUNY at Stony Brook	18	22	7	43	42	1	21	17	67	266
SUNY Col Environ Sci & Forestry	2	0	0	13	6	7	0	1	1	26
SUNY Col of Optometry	0	0	0	0	0	0	0	0	2	2
SUNY Health Sci Ctr Brooklyn	0	0	0	12	12	0	0	0	0	12
SUNY Health Sci Ctr Syracuse	0	0	0	11	11	0	0	0	0	11
Syracuse University	1	2	6	3	3	0	8	21	98	162
Teachers College Columbia U	0	0	0	0	0	0	0	2	122	124
Union College	0	0	0	0	0	0	0	0	1	1
Union Theological Seminary	0	0	0	0	0	0	0	0	7	7
University of Rochester	2	5	6	36	36	0	9	20	64	206
Yeshiva University	0	0	0	29	29	0	1	0	0	30
North Carolina, total	23	20	19	279	241	38	60	101	356	1,082
Duke University	7	5	6	71	70	1	9	36	63	263
East Carolina University	0	0	0	6	6	0	0	0	5	11
North Carolina State U Raleigh	7	9	3	84	47	37	9	18	73	312
U of North Carolina Chapel Hill	9	6	10	100	100	0	28	46	143	388
U of North Carolina Greensboro	0	0	0	1	1	0	14	1	72	88
Wake Forest University	0	0	0	17	17	0	0	0	0	20
North Dakota, total	0	3	1	24	7	17	7	1	21	71
North Dakota State University	0	3	1	22	5	17	0	0	1	39
University of North Dakota	0	0	0	2	2	0	7	1	20	32
Ohio, total	15	43	21	313	292	21	172	129	727	1,937
Air Force Institute Technology	0	0	2	0	0	0	0	0	1	34
Bowling Green State University	0	4	0	4	4	0	14	7	35	73
Case Western Reserve University	0	3	4	46	46	0	10	11	49	199
Cleveland State University	0	0	0	2	2	0	0	2	26	35
Hebrew Union Col-Jewish Inst Rel	0	0	0	0	0	0	0	0	3	3
Kent State University Geauga	0	2	3	19	19	0	30	9	95	166
Medical College of Ohio	0	0	0	26	26	0	0	0	1	27
Miami University Oxford Campus	1	0	0	7	7	0	7	4	27	56
Ohio State University	11	24	11	136	115	21	44	75	249	708
Ohio University	0	5	0	10	10	0	21	0	59	116
University of Akron	0	0	0	3	3	0	15	5	18	104
University of Cincinnati	3	4	1	47	47	0	15	16	116	297
University of Dayton	0	1	0	2	2	0	0	0	10	30
University of Toledo	0	0	0	2	2	0	16	0	35	76
Wright State University	0	0	0	9	9	0	0	0	2	12
Youngstown State University	0	0	0	0	0	0	0	0	1	1
Oklahoma, total	10	8	6	49	40	9	43	34	235	472
Oklahoma State University	3	1	1	26	17	9	21	13	142	238
University of Oklahoma Norman	7	7	5	22	22	0	13	21	89	207
University of Tulsa	0	0	0	1	1	0	9	0	4	27
Oregon, total	19	11	11	97	69	28	24	39	137	428
Oregon Grad Inst Science & Tech	3	0	4	3	3	0	0	0	0	24
Oregon Health Sciences U	0	0	0	16	16	0	1	1	7	25
Oregon State University	9	4	6	55	27	28	4	9	41	179
Portland State University	2	0	0	4	4	0	0	7	11	34
University of Oregon	5	7	1	19	19	0	19	22	78	166

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
Pennsylvania, total	7	1,376	431	54	32	93	68	184	155	56	98	1
Allegheny Univ of the Hlth Sci	183	29	0	0	0	0	0	0	0	0	0	0
Bryn Mawr College	243	13	0	0	0	0	0	0	3	0	3	0
Carnegie Mellon University	55	161	83	12	9	28	11	23	9	5	4	0
Drexel University	132	54	34	1	4	13	5	11	7	4	3	0
Duquesne University	262	9	0	0	0	0	0	0	2	0	2	0
Indiana University of PA	246	12	0	0	0	0	0	0	0	0	0	0
Lehigh University	97	85	43	13	3	5	10	12	15	3	12	0
Pennsylvania State U	14	366	160	8	10	20	31	91	44	13	31	0
Philadelphia Col Pharmacy & Sci	284	5	0	0	0	0	0	0	1	0	1	0
Temple University	76	125	4	0	0	4	0	0	5	2	3	0
Thomas Jefferson University	183	29	0	0	0	0	0	0	0	0	0	0
University of Pennsylvania	26	260	52	6	0	6	4	36	34	17	17	0
University of Pittsburgh	32	226	55	14	6	17	7	11	33	12	20	1
Villanova University	304	2	0	0	0	0	0	0	2	0	2	0
Westminster Theological Seminary	326	0	0	0	0	0	0	0	0	0	0	0
Widener U Pennsylvania Campus	326	0	0	0	0	0	0	0	0	0	0	0
Rhode Island, total	35	161	22	3	1	7	7	4	33	14	19	0
Brown University	81	102	10	1	0	3	4	2	24	12	12	0
Providence College	326	0	0	0	0	0	0	0	0	0	0	0
Salve Regina University	326	0	0	0	0	0	0	0	0	0	0	0
University of Rhode Island	121	59	12	2	1	4	3	2	9	2	7	0
South Carolina, total	31	222	38	7	2	7	9	13	36	10	26	0
Clemson University	104	73	24	1	0	6	6	11	13	7	6	0
Medical U South Carolina	205	22	2	0	0	0	0	2	2	0	2	0
South Carolina State University	326	0	0	0	0	0	0	0	0	0	0	0
U of South Carolina at Columbia	74	127	12	6	2	1	3	0	21	3	18	0
South Dakota, total	50	36	3	0	1	0	1	1	2	0	2	0
South Dakota Sch of Mines & Tech	284	5	3	0	1	0	1	1	0	0	0	0
South Dakota State University	209	21	0	0	0	0	0	0	2	0	2	0
University of South Dakota	257	10	0	0	0	0	0	0	0	0	0	0
Tennessee, total	24	391	96	12	21	19	11	33	42	15	27	0
East Tennessee State University	304	2	0	0	0	0	0	0	0	0	0	0
Meharry Medical College	262	9	0	0	0	0	0	0	0	0	0	0
Mid-America Baptist Theol Sem	326	0	0	0	0	0	0	0	0	0	0	0
Middle Tennessee State U	284	5	0	0	0	0	0	0	2	0	2	0
Tennessee State University	326	0	0	0	0	0	0	0	0	0	0	0
Tennessee Technological U	252	11	11	0	0	5	5	1	0	0	0	0
University of Memphis	143	49	8	0	4	2	0	2	2	0	2	0
University Tennessee Knoxville	46	176	41	10	7	5	0	19	24	10	14	0
University Tennessee Memphis	229	17	0	0	0	0	0	0	1	0	1	0
Vanderbilt University	77	122	36	2	10	7	6	11	13	5	8	0
Texas, total	3	1,633	458	86	68	124	68	112	197	89	108	0
Baylor College of Medicine	147	47	0	0	0	0	0	0	0	0	0	0
Baylor University	252	11	0	0	0	0	0	0	5	1	4	0
Dallas Theological Seminary	326	0	0	0	0	0	0	0	0	0	0	0
Lamar University	300	3	3	1	1	0	0	1	0	0	0	0
Rice University	83	99	24	9	1	5	4	5	28	13	15	0
Sam Houston State University	270	7	0	0	0	0	0	0	0	0	0	0
Southern Methodist University	158	41	18	0	0	9	2	7	0	0	0	0
Southwestern Baptist Theol Sem	326	0	0	0	0	0	0	0	0	0	0	0
St Mary's University	284	5	0	0	0	0	0	0	0	0	0	0
Stephen F Austin State U	304	2	0	0	0	0	0	0	0	0	0	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]
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State and institution	Earth, atmos., & ocean sciences	Mathe- matics	Com- puter sci- ences	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
Pennsylvania, total	28	41	75	261	255	6	156	229	937	2,313
Allegheny Univ of the Hlth Sci	0	0	0	16	16	0	13	0	3	32
Bryn Mawr College	1	2	0	0	0	0	2	5	7	20
Carnegie Mellon University	1	9	31	11	11	0	6	11	35	196
Drexel University	3	0	2	3	3	0	5	0	9	63
Duquesne University	0	0	0	1	1	0	6	0	21	30
Indiana University of PA	0	0	0	0	0	0	0	12	41	53
Lehigh University	2	3	4	6	6	0	10	2	22	107
Pennsylvania State U	17	12	9	50	44	6	26	48	176	542
Philadelphia Col Pharmacy & Sci	0	0	0	4	4	0	0	0	3	8
Temple University	0	3	1	32	32	0	54	26	182	307
Thomas Jefferson University	0	0	0	29	29	0	0	0	1	30
University of Pennsylvania	2	7	18	64	64	0	14	69	181	441
University of Pittsburgh	2	5	10	45	45	0	20	56	198	424
Villanova University	0	0	0	0	0	0	0	0	3	5
Westminster Theological Seminary ..	0	0	0	0	0	0	0	0	8	8
Widener U Pennsylvania Campus	0	0	0	0	0	0	0	0	47	47
Rhode Island, total	19	10	7	18	17	1	19	33	68	229
Brown University	6	8	6	13	13	0	8	27	46	148
Providence College	0	0	0	0	0	0	0	0	2	2
Salve Regina University	0	0	0	0	0	0	0	0	4	4
University of Rhode Island	13	2	1	5	4	1	11	6	16	75
South Carolina, total	11	15	2	66	53	13	21	33	184	406
Clemson University	1	4	0	26	13	13	0	5	26	99
Medical U South Carolina	0	1	0	17	17	0	0	0	4	26
South Carolina State University	0	0	0	0	0	0	0	0	7	7
U of South Carolina at Columbia	10	10	2	23	23	0	21	28	147	274
South Dakota, total	2	0	0	15	6	9	7	7	58	94
South Dakota Sch of Mines & Tech ..	2	0	0	0	0	0	0	0	1	6
South Dakota State University	0	0	0	12	3	9	0	7	0	21
University of South Dakota	0	0	0	3	3	0	7	0	57	67
Tennessee, total	5	14	8	111	103	8	69	46	344	735
East Tennessee State University	0	0	0	2	2	0	0	0	24	26
Meharry Medical College	0	0	0	9	9	0	0	0	0	9
Mid-America Baptist Theol Sem	0	0	0	0	0	0	0	0	5	5
Middle Tennessee State U	0	0	0	0	0	0	0	3	5	10
Tennessee State University	0	0	0	0	0	0	0	0	25	25
Tennessee Technological U	0	0	0	0	0	0	0	0	0	11
University of Memphis	1	5	1	5	5	0	25	2	64	113
University Tennessee Knoxville	4	7	4	39	31	8	34	23	116	292
University Tennessee Memphis	0	0	0	16	16	0	0	0	13	30
Vanderbilt University	0	2	3	40	40	0	10	18	92	214
Texas, total	67	65	56	410	353	57	186	194	1,061	2,694
Baylor College of Medicine	0	0	0	47	47	0	0	0	1	48
Baylor University	2	2	0	1	1	0	1	0	20	31
Dallas Theological Seminary	0	0	0	0	0	0	0	0	7	7
Lamar University	0	0	0	0	0	0	0	0	0	3
Rice University	1	12	6	8	8	0	8	12	17	116
Sam Houston State University	0	0	0	0	0	0	0	7	0	7
Southern Methodist University	2	4	4	1	1	0	3	9	2	43
Southwestern Baptist Theol Sem	0	0	0	0	0	0	0	0	43	43
St Mary's University	0	0	0	0	0	0	4	1	5	10
Stephen F Austin State U	0	0	0	2	0	2	0	0	0	2

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	S&E rank	Total S&E	Engineering						Physical sciences			
			Total	Chemical	Civil	Electrical	Mechanical	Other engineering	Total	Physics & astronomy	Chemistry	Other physical sciences
Texas, continued:												
Texas A&M University	11	407	122	26	20	25	21	30	40	11	29	0
Texas A&M University Commerce	284	5	0	0	0	0	0	0	0	0	0	0
Texas A&M University Kingsville	326	0	0	0	0	0	0	0	0	0	0	0
Texas Christian University	257	10	0	0	0	0	0	0	2	2	0	0
Texas Southern University	326	0	0	0	0	0	0	0	0	0	0	0
Texas Tech University	82	100	19	4	3	3	2	7	11	4	7	0
Texas Woman's University	188	27	0	0	0	0	0	0	0	0	0	0
University of Dallas	316	1	0	0	0	0	0	0	0	0	0	0
University of Houston	88	94	37	7	3	14	5	8	16	4	12	0
U North TX	114	63	0	0	0	0	0	0	15	9	6	0
U North TX Hlth Sci Ctr Ft Worth	270	7	0	0	0	0	0	0	0	0	0	0
University of St Thomas	326	0	0	0	0	0	0	0	0	0	0	0
U Texas at Arlington	116	62	38	0	1	14	5	18	3	1	2	0
U Texas at Austin	4	461	193	39	39	53	29	33	66	36	30	0
U Texas at Dallas	171	34	1	0	0	1	0	0	8	5	3	0
U Texas at El Paso	280	6	2	0	0	0	0	2	0	0	0	0
U Texas Hlth Sci Ctr	151	45	0	0	0	0	0	0	1	1	0	0
U Texas Hlth Sci Ctr San Antonio	212	20	0	0	0	0	0	0	1	1	0	0
U Texas Med Branch Galveston	200	23	0	0	0	0	0	0	0	0	0	0
U Texas SW Med Ctr Dallas	134	53	1	0	0	0	0	0	1	1	0	0
Utah, total	33	196	44	6	7	8	10	13	24	6	18	0
Brigham Young University	125	58	10	3	0	4	3	0	7	2	5	0
University of Utah	100	79	21	2	0	4	7	8	12	3	9	0
Utah State University	121	59	13	1	7	0	0	5	5	1	4	0
Vermont, total	48	42	4	0	0	2	1	1	3	0	3	0
Middlebury College	326	0	0	0	0	0	0	0	0	0	0	0
University of Vermont	155	42	4	0	0	2	1	1	3	0	3	0
Virginia, total	11	702	210	18	20	58	40	74	69	32	36	1
College of William and Mary	169	35	4	2	0	1	0	1	12	10	2	0
George Mason University	97	85	10	0	0	10	0	0	3	1	1	0
Old Dominion University	125	58	16	0	2	0	5	9	1	1	0	0
Regent University	326	0	0	0	0	0	0	0	0	0	0	0
Union Theo Sem & Presbyterian School of Chrstn Ed	326	0	0	0	0	0	0	0	0	0	0	0
University of Virginia	40	201	58	8	2	20	4	24	22	11	11	0
Virginia Commonwealth University	129	56	1	0	0	0	0	1	4	0	4	0
Virginia Polytechnic Inst & St U	25	267	121	8	16	27	31	39	27	9	18	0
Washington, total	19	482	94	10	17	29	16	22	59	21	38	0
Gonzaga University	326	0	0	0	0	0	0	0	0	0	0	0
Seattle Pacific University	326	0	0	0	0	0	0	0	0	0	0	0
Seattle University	326	0	0	0	0	0	0	0	0	0	0	0
University of Washington Seattle	15	351	71	9	12	25	11	14	44	17	27	0
Washington State University	70	131	23	1	5	4	5	8	15	4	11	0
West Virginia, total	41	78	28	1	5	4	12	6	8	5	3	0
Marshall University	284	5	0	0	0	0	0	0	0	0	0	0
West Virginia University	104	73	28	1	5	4	12	6	8	5	3	0
Wisconsin, total	12	681	123	11	11	35	23	43	98	35	61	2
Marquette University	179	30	9	0	1	5	0	3	7	0	7	0
Medical College of Wisconsin	222	18	0	0	0	0	0	0	0	0	0	0
U of Wisconsin Madison	1	574	105	11	9	28	21	36	81	30	49	2
U of Wisconsin Milwaukee	121	59	9	0	1	2	2	4	10	5	5	0
Wyoming, total	43	65	5	3	0	1	1	0	15	5	10	0
University of Wyoming	112	65	5	3	0	1	1	0	15	5	10	0
Puerto Rico, total	45	58	1	0	1	0	0	0	5	0	5	0
Caribbean Ctr Advanced Studies	169	35	0	0	0	0	0	0	0	0	0	0
Inter American U PR Metropolitan	326	0	0	0	0	0	0	0	0	0	0	0
U of PR Mayaguez Campus	300	3	1	0	1	0	0	0	0	0	0	0
U of PR Rio Piedras	212	20	0	0	0	0	0	0	5	0	5	0

See explanatory information, if any, and SOURCE at end of table.

**Table 6. Institutions conferring science and engineering (S&E) doctorates,
by State, institution, and major field: 1997**

[To increase readability, fields span 2 pages and institutions are repeated on facing pages]

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State and institution	Earth, atmos., & ocean sciences	Mathem- atics	Com- puter scien- ces	Biological & agricultural sciences			Psy- chology	Social sci- ences	Non- S&E, total	Grand total, all fields
				Total	Bio- logical	Agri- cul- tural				
Texas, continued:										
Texas A&M University	27	7	19	124	78	46	25	43	137	544
Texas A&M University Commerce	0	0	0	0	0	0	5	0	39	44
Texas A&M University Kingsville	0	0	0	0	0	0	0	0	8	8
Texas Christian University	0	0	0	0	0	0	8	0	11	21
Texas Southern University	0	0	0	0	0	0	0	0	17	17
Texas Tech University	4	6	2	22	15	7	21	15	73	173
Texas Woman's University	0	0	0	7	6	1	18	2	51	78
University of Dallas	0	0	0	0	0	0	0	1	2	3
University of Houston	1	8	2	11	11	0	10	9	94	188
U North TX	0	2	2	3	3	0	27	14	120	183
U North TX Hlth Sci Ctr Ft Worth	0	0	0	7	7	0	0	0	0	7
University of St Thomas	0	0	0	0	0	0	0	0	1	1
U Texas at Arlington	1	4	5	1	1	0	3	7	34	96
U Texas at Austin	17	18	14	47	46	1	39	67	326	787
U Texas at Dallas	7	2	2	5	5	0	2	7	14	48
U Texas at El Paso	3	0	0	0	0	0	0	0	0	6
U Texas Hlth Sci Ctr	2	0	0	42	42	0	0	0	31	76
U Texas Hlth Sci Ctr San Antonio ...	0	0	0	19	19	0	0	0	4	24
U Texas Med Branch Galveston	0	0	0	23	23	0	0	0	4	27
U Texas SW Med Ctr Dallas	0	0	0	40	40	0	11	0	0	53
Utah, total	12	4	3	45	39	6	43	21	189	385
Brigham Young University	2	0	1	5	5	0	29	4	31	89
University of Utah	8	3	2	19	19	0	4	10	143	222
Utah State University	2	1	0	21	15	6	10	7	15	74
Vermont, total	0	1	0	17	15	2	17	0	20	62
Middlebury College	0	0	0	0	0	0	0	0	7	7
University of Vermont	0	1	0	17	15	2	17	0	13	55
Virginia, total	26	42	38	141	114	27	96	80	410	1,112
College of William and Mary	8	0	3	3	2	1	1	4	21	56
George Mason University	2	5	20	3	3	0	23	19	41	126
Old Dominion University	3	3	5	7	7	0	12	11	3	61
Regent University	0	0	0	0	0	0	0	0	2	2
Union Theo Sem & Presbyterian School of Chrstn Ed	0	0	0	0	0	0	0	0	5	5
University of Virginia	7	17	5	39	39	0	28	25	164	365
Virginia Commonwealth University ...	1	0	1	36	36	0	9	4	41	97
Virginia Polytechnic Inst & St U	5	17	4	53	27	26	23	17	133	400
Washington, total	33	24	19	152	127	25	35	66	255	737
Gonzaga University	0	0	0	0	0	0	0	0	21	21
Seattle Pacific University	0	0	0	0	0	0	0	0	2	2
Seattle University	0	0	0	0	0	0	0	0	15	15
University of Washington Seattle	27	17	17	105	92	13	22	48	175	526
Washington State University	6	7	2	47	35	12	13	18	42	173
West Virginia, total	1	0	0	19	19	0	18	4	68	146
Marshall University	0	0	0	5	5	0	0	0	0	5
West Virginia University	1	0	0	14	14	0	18	4	68	141
Wisconsin, total	19	34	15	225	187	38	45	122	299	980
Marquette University	0	2	0	6	6	0	6	0	45	75
Medical College of Wisconsin	0	0	0	18	18	0	0	0	0	18
U of Wisconsin Madison	18	28	15	193	155	38	31	103	212	786
U of Wisconsin Milwaukee	1	4	0	8	8	0	8	19	42	101
Wyoming, total	8	5	2	16	8	8	8	6	14	79
University of Wyoming	8	5	2	16	8	8	8	6	14	79
Puerto Rico, total	1	0	0	4	4	0	46	1	41	99
Caribbean Ctr Advanced Studies	0	0	0	0	0	0	35	0	5	40
Inter American U PR Metropolitan	0	0	0	0	0	0	0	0	14	14
U of PR Mayaguez Campus	1	0	0	1	1	0	0	0	0	3
U of PR Rio Piedras	0	0	0	3	3	0	11	1	22	42

KEY: - = Not applicable

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

Table 7. Postgraduation plans of science and engineering (S&E) doctorate recipients, by citizenship status and major field: 1997

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Field of study	Total	Definite plans							
		Total with definite plans	In the United States					Abroad	Location unknown
			Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
All recipients									
Science and engineering, total	26,847	16,428	14,112	5,892	2,515	3,585	2,120	1,819	497
Engineering, total	6,052	3,626	3,079	661	276	1,741	401	446	101
Aeronautical/astronautical	272	174	150	43	7	63	37	21	3
Chemical	764	482	410	102	19	259	30	56	16
Civil	653	343	271	69	47	101	54	65	7
Electrical	1,695	1,066	940	93	70	664	113	95	31
Industrial	241	126	94	12	20	55	7	28	4
Materials/metallurgical	573	363	303	93	14	168	28	45	15
Mechanical	1,010	584	511	125	45	282	59	59	14
Other engineering	844	488	400	124	54	149	73	77	11
Sciences, total	20,795	12,802	11,033	5,231	2,239	1,844	1,719	1,373	396
Physical sciences, total	3,711	2,386	2,155	1,245	170	585	155	196	35
Astronomy	197	141	123	89	9	15	10	16	2
Chemistry	2,115	1,380	1,265	736	104	356	69	94	21
Physics	1,379	854	756	415	54	213	74	86	12
Other physical sciences	20	11	11	5	3	1	2	0	0
Earth, atmospheric, and ocean sciences	862	528	437	204	69	73	91	71	20
Mathematics	1,112	654	538	155	185	134	64	92	24
Computer sciences	889	596	513	70	117	277	49	63	20
Biological sciences	5,717	3,863	3,440	2,623	299	165	353	300	123
Agricultural sciences	966	523	381	160	78	91	52	127	15
Psychology	3,489	1,952	1,823	577	400	281	565	57	72
Social sciences	4,049	2,300	1,746	197	921	238	390	467	87
Non-S&E, total	15,858	9,002	7,832	441	4,183	576	2,632	719	451
Grand total, all fields	42,705	25,430	21,944	6,333	6,698	4,161	4,752	2,538	948
U.S. citizens									
Science and engineering, total	15,744	10,545	9,793	3,783	2,139	2,068	1,803	406	346
Engineering, total	2,688	1,803	1,696	306	213	861	316	49	58
Aeronautical/astronautical	153	104	102	22	4	43	33	1	1
Chemical	318	220	204	43	12	132	17	8	8
Civil	245	156	148	21	38	47	42	2	6
Electrical	738	519	491	45	48	310	88	9	19
Industrial	97	59	54	7	17	25	5	2	3
Materials/metallurgical	270	185	171	43	11	94	23	10	4
Mechanical	450	291	274	53	38	135	48	7	10
Other engineering	417	269	252	72	45	75	60	10	7
Sciences, total	13,056	8,742	8,097	3,477	1,926	1,207	1,487	357	288
Physical sciences, total	2,112	1,480	1,397	751	144	378	124	63	20
Astronomy	151	113	101	74	8	11	8	11	1
Chemistry	1,223	871	829	438	91	247	53	31	11
Physics	724	486	457	235	42	119	61	21	8
Other physical sciences	14	10	10	4	3	1	2	0	0
Earth, atmospheric, and ocean sciences	518	359	318	132	59	47	80	26	15
Mathematics	516	333	301	71	136	49	45	18	14
Computer sciences	417	320	298	39	88	136	35	7	15
Biological sciences	3,627	2,599	2,396	1,741	253	119	283	125	78
Agricultural sciences	463	272	249	71	72	61	45	16	7
Psychology	2,886	1,822	1,732	533	383	268	548	21	69
Social sciences	2,517	1,557	1,406	139	791	149	327	81	70
Non-S&E, total	11,944	7,717	7,141	335	3,778	484	2,544	181	395
Grand total, all fields	27,688	18,262	16,934	4,118	5,917	2,552	4,347	587	741

See explanatory information, if any, and SOURCE at end of table.

**Table 7. Postgraduation plans of science and engineering (S&E) doctorate recipients,
by citizenship status and major field: 1997**

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Field of study	Total	Definite plans							
		Total with definite plans	In the United States					Abroad	Location unknown
			Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
Non-U.S. citizens with permanent visas									
Science and engineering, total	2,261	1,330	1,198	495	116	451	136	78	54
Engineering, total	593	346	311	44	14	222	31	24	11
Aeronautical/astronautical	13	6	6	0	0	5	1	0	0
Chemical	87	54	48	9	4	30	5	3	3
Civil	78	39	32	9	0	14	9	7	0
Electrical	189	112	103	3	6	86	8	8	1
Industrial	17	12	10	1	0	9	0	2	0
Materials/metallurgical	44	27	23	6	0	15	2	0	4
Mechanical	81	50	48	11	2	33	2	1	1
Other engineering	84	46	41	5	2	30	4	3	2
Sciences, total	1,668	984	887	451	102	229	105	54	43
Physical sciences, total	361	216	203	94	8	93	8	9	4
Astronomy	6	4	3	2	0	1	0	1	0
Chemistry	203	123	117	57	5	52	3	3	3
Physics	151	89	83	35	3	40	5	5	1
Other physical sciences	1	0	0	0	0	0	0	0	0
Earth, atmospheric, and ocean sciences	69	31	30	10	2	13	5	1	0
Mathematics	100	54	50	11	11	23	5	2	2
Computer sciences	89	56	53	7	8	33	5	2	1
Biological sciences	576	373	346	270	19	20	37	6	21
Agricultural sciences	83	46	36	19	2	10	5	5	5
Psychology	90	52	50	23	7	9	11	1	1
Social sciences	300	156	119	17	45	28	29	28	9
Non-S&E, total	652	328	265	20	168	37	40	41	22
Grand total, all fields	2,913	1,658	1,463	515	284	488	176	119	76
Non-U.S. citizens with temporary visas									
Science and engineering, total	6,948	4,309	3,000	1,549	250	1,036	165	1,223	86
Engineering, total	2,396	1,412	1,035	298	47	642	48	349	28
Aeronautical/astronautical	95	63	41	21	3	15	2	20	2
Chemical	324	199	151	46	3	94	8	44	4
Civil	292	139	88	37	9	39	3	50	1
Electrical	660	420	339	44	16	262	17	71	10
Industrial	111	53	30	4	3	21	2	23	0
Materials/metallurgical	230	146	106	43	2	58	3	33	7
Mechanical	426	233	182	60	4	111	7	48	3
Other engineering	258	159	98	43	7	42	6	60	1
Sciences, total	4,552	2,897	1,965	1,251	203	394	117	874	58
Physical sciences, total	1,015	661	535	384	18	111	22	118	8
Astronomy	34	22	18	13	1	2	2	3	1
Chemistry	561	369	306	229	8	57	12	58	5
Physics	419	269	210	141	9	52	8	57	2
Other physical sciences	1	1	1	1	0	0	0	0	0
Earth, atmospheric, and ocean sciences	212	125	80	58	8	9	5	40	5
Mathematics	416	256	183	72	37	60	14	65	8
Computer sciences	314	213	158	23	21	107	7	52	3
Biological sciences	1,212	840	668	587	25	25	31	150	22
Agricultural sciences	347	188	92	66	4	20	2	93	3
Psychology	127	76	41	21	10	4	6	33	2
Social sciences	909	538	208	40	80	58	30	323	7
Non-S&E, total	1,515	855	400	81	223	53	43	430	25
Grand total, all fields	8,463	5,164	3,400	1,630	473	1,089	208	1,653	111

NOTE: Details may not add to totals because of persons with unknown citizenship.

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

Table 8. Percentage distribution of definite postgraduation plans of science and engineering (S&E) doctorate recipients, by citizenship status and major field: 1997

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Field of study	Definite plans	In the United States					Abroad	Location unknown
		Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
All recipients								
Science and engineering, total	100.0	85.9	35.9	15.3	21.8	12.9	11.1	3.0
Engineering, total	100.0	84.9	18.2	7.6	48.0	11.1	12.3	2.8
Aeronautical/astronautical	100.0	86.2	24.7	4.0	36.2	21.3	12.1	1.7
Chemical	100.0	85.1	21.2	3.9	53.7	6.2	11.6	3.3
Civil	100.0	79.0	20.1	13.7	29.4	15.7	19.0	2.0
Electrical	100.0	88.2	8.7	6.6	62.3	10.6	8.9	2.9
Industrial	100.0	74.6	9.5	15.9	43.7	5.6	22.2	3.2
Materials/metallurgical	100.0	83.5	25.6	3.9	46.3	7.7	12.4	4.1
Mechanical	100.0	87.5	21.4	7.7	48.3	10.1	10.1	2.4
Other engineering	100.0	82.0	25.4	11.1	30.5	15.0	15.8	2.3
Sciences, total	100.0	86.2	40.9	17.5	14.4	13.4	10.7	3.1
Physical sciences, total	100.0	90.3	52.2	7.1	24.5	6.5	8.2	1.5
Astronomy	100.0	87.2	63.1	6.4	10.6	7.1	11.3	1.4
Chemistry	100.0	91.7	53.3	7.5	25.8	5.0	6.8	1.5
Physics	100.0	88.5	48.6	6.3	24.9	8.7	10.1	1.4
Other physical sciences	100.0	100.0	45.5	27.3	9.1	18.2	0	0
Earth, atmospheric, and ocean sciences	100.0	82.8	38.6	13.1	13.8	17.2	13.4	3.8
Mathematics	100.0	82.3	23.7	28.3	20.5	9.8	14.1	3.7
Computer sciences	100.0	86.1	11.7	19.6	46.5	8.2	10.6	3.4
Biological sciences	100.0	89.0	67.9	7.7	4.3	9.1	7.8	3.2
Agricultural sciences	100.0	72.8	30.6	14.9	17.4	9.9	24.3	2.9
Psychology	100.0	93.4	29.6	20.5	14.4	28.9	2.9	3.7
Social sciences	100.0	75.9	8.6	40.0	10.3	17.0	20.3	3.8
Non-S&E, total	100.0	87.0	4.9	46.5	6.4	29.2	8.0	5.0
Grand total, all fields	100.0	86.3	24.9	26.3	16.4	18.7	10.0	3.7
U.S. citizens								
Science and engineering, total	100.0	92.9	35.9	20.3	19.6	17.1	3.9	3.3
Engineering, total	100.0	94.1	17.0	11.8	47.8	17.5	2.7	3.2
Aeronautical/astronautical	100.0	98.1	21.2	3.8	41.3	31.7	1.0	1.0
Chemical	100.0	92.7	19.5	5.5	60.0	7.7	3.6	3.6
Civil	100.0	94.9	13.5	24.4	30.1	26.9	1.3	3.8
Electrical	100.0	94.6	8.7	9.2	59.7	17.0	1.7	3.7
Industrial	100.0	91.5	11.9	28.8	42.4	8.5	3.4	5.1
Materials/metallurgical	100.0	92.4	23.2	5.9	50.8	12.4	5.4	2.2
Mechanical	100.0	94.2	18.2	13.1	46.4	16.5	2.4	3.4
Other engineering	100.0	93.7	26.8	16.7	27.9	22.3	3.7	2.6
Sciences, total	100.0	92.6	39.8	22.0	13.8	17.0	4.1	3.3
Physical sciences, total	100.0	94.4	50.7	9.7	25.5	8.4	4.3	1.4
Astronomy	100.0	89.4	65.5	7.1	9.7	7.1	9.7	.9
Chemistry	100.0	95.2	50.3	10.4	28.4	6.1	3.6	1.3
Physics	100.0	94.0	48.4	8.6	24.5	12.6	4.3	1.6
Other physical sciences	100.0	100.0	40.0	30.0	10.0	20.0	0	0
Earth, atmospheric, and ocean sciences	100.0	88.6	36.8	16.4	13.1	22.3	7.2	4.2
Mathematics	100.0	90.4	21.3	40.8	14.7	13.5	5.4	4.2
Computer sciences	100.0	93.1	12.2	27.5	42.5	10.9	2.2	4.7
Biological sciences	100.0	92.2	67.0	9.7	4.6	10.9	4.8	3.0
Agricultural sciences	100.0	91.5	26.1	26.5	22.4	16.5	5.9	2.6
Psychology	100.0	95.1	29.3	21.0	14.7	30.1	1.2	3.8
Social sciences	100.0	90.3	8.9	50.8	9.6	21.0	5.2	4.5
Non-S&E, total	100.0	92.5	4.3	49.0	6.3	33.0	2.3	5.1
Grand total, all fields	100.0	92.7	22.5	32.4	14.0	23.8	3.2	4.1

See explanatory information, if any, and SOURCE at end of table.

Table 8. Percentage distribution of definite postgraduation plans of science and engineering (S&E) doctorate recipients, by citizenship status and major field: 1997

Page 2 of 2

Field of study	Definite plans	In the United States					Abroad	Location unknown
		Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
Non-U.S. citizens with permanent visas								
Science and engineering, total	100.0	90.1	37.2	8.7	33.9	10.2	5.9	4.1
Engineering, total	100.0	89.9	12.7	4.0	64.2	9.0	6.9	3.2
Aeronautical/astronautical	100.0	100.0	0	0	83.3	16.7	0	0
Chemical	100.0	88.9	16.7	7.4	55.6	9.3	5.6	5.6
Civil	100.0	82.1	23.1	0	35.9	23.1	17.9	0
Electrical	100.0	92.0	2.7	5.4	76.8	7.1	7.1	.9
Industrial	100.0	83.3	8.3	0	75.0	0	16.7	0
Materials/metallurgical	100.0	85.2	22.2	0	55.6	7.4	0	14.8
Mechanical	100.0	96.0	22.0	4.0	66.0	4.0	2.0	2.0
Other engineering	100.0	89.1	10.9	4.3	65.2	8.7	6.5	4.3
Sciences, total	100.0	90.1	45.8	10.4	23.3	10.7	5.5	4.4
Physical sciences, total	100.0	94.0	43.5	3.7	43.1	3.7	4.2	1.9
Astronomy	100.0	75.0	50.0	0	25.0	0	25.0	0
Chemistry	100.0	95.1	46.3	4.1	42.3	2.4	2.4	2.4
Physics	100.0	93.3	39.3	3.4	44.9	5.6	5.6	1.1
Other physical sciences	0	0	0	0	0	0	0	0
Earth, atmospheric, and ocean sciences	100.0	96.8	32.3	6.5	41.9	16.1	3.2	0
Mathematics	100.0	92.6	20.4	20.4	42.6	9.3	3.7	3.7
Computer sciences	100.0	94.6	12.5	14.3	58.9	8.9	3.6	1.8
Biological sciences	100.0	92.8	72.4	5.1	5.4	9.9	1.6	5.6
Agricultural sciences	100.0	78.3	41.3	4.3	21.7	10.9	10.9	10.9
Psychology	100.0	96.2	44.2	13.5	17.3	21.2	1.9	1.9
Social sciences	100.0	76.3	10.9	28.8	17.9	18.6	17.9	5.8
Non-S&E, total	100.0	80.8	6.1	51.2	11.3	12.2	12.5	6.7
Grand total, all fields	100.0	88.2	31.1	17.1	29.4	10.6	7.2	4.6
Non-U.S. citizens with temporary visas								
Science and engineering, total	100.0	69.6	35.9	5.8	24.0	3.8	28.4	2.0
Engineering, total	100.0	73.3	21.1	3.3	45.5	3.4	24.7	2.0
Aeronautical/astronautical	100.0	65.1	33.3	4.8	23.8	3.2	31.7	3.2
Chemical	100.0	75.9	23.1	1.5	47.2	4.0	22.1	2.0
Civil	100.0	63.3	26.6	6.5	28.1	2.2	36.0	.7
Electrical	100.0	80.7	10.5	3.8	62.4	4.0	16.9	2.4
Industrial	100.0	56.6	7.5	5.7	39.6	3.8	43.4	0
Materials/metallurgical	100.0	72.6	29.5	1.4	39.7	2.1	22.6	4.8
Mechanical	100.0	78.1	25.8	1.7	47.6	3.0	20.6	1.3
Other engineering	100.0	61.6	27.0	4.4	26.4	3.8	37.7	.6
Sciences, total	100.0	67.8	43.2	7.0	13.6	4.0	30.2	2.0
Physical sciences, total	100.0	80.9	58.1	2.7	16.8	3.3	17.9	1.2
Astronomy	100.0	81.8	59.1	4.5	9.1	9.1	13.6	4.5
Chemistry	100.0	82.9	62.1	2.2	15.4	3.3	15.7	1.4
Physics	100.0	78.1	52.4	3.3	19.3	3.0	21.2	.7
Other physical sciences	100.0	100.0	100.0	0	0	0	0	0
Earth, atmospheric, and ocean sciences	100.0	64.0	46.4	6.4	7.2	4.0	32.0	4.0
Mathematics	100.0	71.5	28.1	14.5	23.4	5.5	25.4	3.1
Computer sciences	100.0	74.2	10.8	9.9	50.2	3.3	24.4	1.4
Biological sciences	100.0	79.5	69.9	3.0	3.0	3.7	17.9	2.6
Agricultural sciences	100.0	48.9	35.1	2.1	10.6	1.1	49.5	1.6
Psychology	100.0	53.9	27.6	13.2	5.3	7.9	43.4	2.6
Social sciences	100.0	38.7	7.4	14.9	10.8	5.6	60.0	1.3
Non-S&E, total	100.0	46.8	9.5	26.1	6.2	5.0	50.3	2.9
Grand total, all fields	100.0	65.8	31.6	9.2	21.1	4.0	32.0	2.1

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

**Table 9. Postgraduation plans of science and engineering (S&E) doctorate recipients,
by sex and major field: 1997**

[U.S. citizens and non-U.S. citizens with permanent visas]

Page 1 of 2

Field of study	Total	Definite plans							
		Total with definite plans	In the United States					Abroad	Location unknown
			Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
All such recipients									
Science and engineering, total	18,005	11,875	10,991	4,278	2,255	2,519	1,939	484	400
Engineering, total	3,281	2,149	2,007	350	227	1,083	347	73	69
Aeronautical/astronautical	166	110	108	22	4	48	34	1	1
Chemical	405	274	252	52	16	162	22	11	11
Civil	323	195	180	30	38	61	51	9	6
Electrical	927	631	594	48	54	396	96	17	20
Industrial	114	71	64	8	17	34	5	4	3
Materials/metallurgical	314	212	194	49	11	109	25	10	8
Mechanical	531	341	322	64	40	168	50	8	11
Other engineering	501	315	293	77	47	105	64	13	9
Sciences, total	14,724	9,726	8,984	3,928	2,028	1,436	1,592	411	331
Physical sciences, total	2,473	1,696	1,600	845	152	471	132	72	24
Astronomy	157	117	104	76	8	12	8	12	1
Chemistry	1,426	994	946	495	96	299	56	34	14
Physics	875	575	540	270	45	159	66	26	9
Other physical sciences	15	10	10	4	3	1	2	0	0
Earth, atmospheric, and ocean sciences	587	390	348	142	61	60	85	27	15
Mathematics	616	387	351	82	147	72	50	20	16
Computer sciences	506	376	351	46	96	169	40	9	16
Biological sciences	4,203	2,972	2,742	2,011	272	139	320	131	99
Agricultural sciences	546	318	285	90	74	71	50	21	12
Psychology	2,976	1,874	1,782	556	390	277	559	22	70
Social sciences	2,817	1,713	1,525	156	836	177	356	109	79
Non-S&E, total	12,596	8,045	7,406	355	3,946	521	2,584	222	417
Grand total, all fields	30,601	19,920	18,397	4,633	6,201	3,040	4,523	706	817
Women									
Science and engineering, total	6,814	4,379	4,077	1,721	989	621	746	144	158
Engineering, total	509	324	297	55	55	151	36	11	16
Aeronautical/astronautical	12	6	6	2	0	4	0	0	0
Chemical	77	49	48	8	7	31	2	0	1
Civil	58	33	27	3	13	7	4	3	3
Electrical	107	70	62	4	6	45	7	1	7
Industrial	26	16	15	4	4	5	2	0	1
Materials/metallurgical	71	48	40	11	3	18	8	5	3
Mechanical	54	31	30	5	6	17	2	1	0
Other engineering	104	71	69	18	16	24	11	1	1
Sciences, total	6,305	4,055	3,780	1,666	934	470	710	133	142
Physical sciences, total	581	389	376	183	52	110	31	9	4
Astronomy	25	19	18	14	1	1	2	1	0
Chemistry	427	287	279	135	40	85	19	5	3
Physics	123	80	76	33	10	24	9	3	1
Other physical sciences	6	3	3	1	1	0	1	0	0
Earth, atmospheric, and ocean sciences	156	101	88	39	22	8	19	10	3
Mathematics	172	114	108	24	49	22	13	2	4
Computer sciences	98	71	61	8	26	23	4	3	7
Biological sciences	1,895	1,303	1,214	929	126	41	118	52	37
Agricultural sciences	157	82	72	24	18	19	11	6	4
Psychology	2,005	1,244	1,181	389	259	177	356	12	51
Social sciences	1,241	751	680	70	382	70	158	39	32
Non-S&E, total	7,132	4,583	4,250	209	2,255	277	1,509	88	245
Grand total, all fields	13,946	8,962	8,327	1,930	3,244	898	2,255	232	403

See explanatory information, if any, and SOURCE at end of table.

**Table 9. Postgraduation plans of science and engineering (S&E) doctorate recipients,
by sex and major field: 1997**

[U.S. citizens and non-U.S. citizens with permanent visas]

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Field of study	Total	Definite plans							
		Total with definite plans	In the United States					Abroad	Location unknown
			Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
Men									
Science and engineering, total	11,191	7,496	6,914	2,557	1,266	1,898	1,193	340	242
Engineering, total	2,772	1,825	1,710	295	172	932	311	62	53
Aeronautical/astronautical	154	104	102	20	4	44	34	1	1
Chemical	328	225	204	44	9	131	20	11	10
Civil	265	162	153	27	25	54	47	6	3
Electrical	820	561	532	44	48	351	89	16	13
Industrial	88	55	49	4	13	29	3	4	2
Materials/metallurgical	243	164	154	38	8	91	17	5	5
Mechanical	477	310	292	59	34	151	48	7	11
Other engineering	397	244	224	59	31	81	53	12	8
Sciences, total	8,419	5,671	5,204	2,262	1,094	966	882	278	189
Physical sciences, total	1,892	1,307	1,224	662	100	361	101	63	20
Astronomy	132	98	86	62	7	11	6	11	1
Chemistry	999	707	667	360	56	214	37	29	11
Physics	752	495	464	237	35	135	57	23	8
Other physical sciences	9	7	7	3	2	1	1	0	0
Earth, atmospheric, and ocean sciences	431	289	260	103	39	52	66	17	12
Mathematics	444	273	243	58	98	50	37	18	12
Computer sciences	408	305	290	38	70	146	36	6	9
Biological sciences	2,308	1,669	1,528	1,082	146	98	202	79	62
Agricultural sciences	389	236	213	66	56	52	39	15	8
Psychology	971	630	601	167	131	100	203	10	19
Social sciences	1,576	962	845	86	454	107	198	70	47
Non-S&E, total	5,464	3,462	3,156	146	1,691	244	1,075	134	172
Grand total, all fields	16,655	10,958	10,070	2,703	2,957	2,142	2,268	474	414

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates

Table 10. Percentage distribution of definite postgraduation plans of science and engineering (S&E) doctorate recipients, by sex and major field: 1997

[U.S. citizens and non-U.S. citizens with permanent visas]

Page 1 of 2

Field of study	Definite plans	In the United States					Abroad	Location unknown
		Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
All such recipients								
Science and engineering, total	100.0	92.6	36.0	19.0	21.2	16.3	4.1	3.4
Engineering, total	100.0	93.4	16.3	10.6	50.4	16.1	3.4	3.2
Aeronautical/astronautical	100.0	98.2	20.0	3.6	43.6	30.9	.9	.9
Chemical	100.0	92.0	19.0	5.8	59.1	8.0	4.0	4.0
Civil	100.0	92.3	15.4	19.5	31.3	26.2	4.6	3.1
Electrical	100.0	94.1	7.6	8.6	62.8	15.2	2.7	3.2
Industrial	100.0	90.1	11.3	23.9	47.9	7.0	5.6	4.2
Materials/metallurgical	100.0	91.5	23.1	5.2	51.4	11.8	4.7	3.8
Mechanical	100.0	94.4	18.8	11.7	49.3	14.7	2.3	3.2
Other engineering	100.0	93.0	24.4	14.9	33.3	20.3	4.1	2.9
Sciences, total	100.0	92.4	40.4	20.9	14.8	16.4	4.2	3.4
Physical sciences, total	100.0	94.3	49.8	9.0	27.8	7.8	4.2	1.4
Astronomy	100.0	88.9	65.0	6.8	10.3	6.8	10.3	.9
Chemistry	100.0	95.2	49.8	9.7	30.1	5.6	3.4	1.4
Physics	100.0	93.9	47.0	7.8	27.7	11.5	4.5	1.6
Other physical sciences	100.0	100.0	40.0	30.0	10.0	20.0	0	0
Earth, atmospheric, and ocean sciences	100.0	89.2	36.4	15.6	15.4	21.8	6.9	3.8
Mathematics	100.0	90.7	21.2	38.0	18.6	12.9	5.2	4.1
Computer sciences	100.0	93.4	12.2	25.5	44.9	10.6	2.4	4.3
Biological sciences	100.0	92.3	67.7	9.2	4.7	10.8	4.4	3.3
Agricultural sciences	100.0	89.6	28.3	23.3	22.3	15.7	6.6	3.8
Psychology	100.0	95.1	29.7	20.8	14.8	29.8	1.2	3.7
Social sciences	100.0	89.0	9.1	48.8	10.3	20.8	6.4	4.6
Non-S&E, total	100.0	92.1	4.4	49.0	6.5	32.1	2.8	5.2
Grand total, all fields	100.0	92.4	23.3	31.1	15.3	22.7	3.5	4.1
Women								
Science and engineering, total	100.0	93.1	39.3	22.6	14.2	17.0	3.3	3.6
Engineering, total	100.0	91.7	17.0	17.0	46.6	11.1	3.4	4.9
Aeronautical/astronautical	100.0	100.0	33.3	0	66.7	0	0	0
Chemical	100.0	98.0	16.3	14.3	63.3	4.1	0	2.0
Civil	100.0	81.8	9.1	39.4	21.2	12.1	9.1	9.1
Electrical	100.0	88.6	5.7	8.6	64.3	10.0	1.4	10.0
Industrial	100.0	93.8	25.0	25.0	31.3	12.5	0	6.3
Materials/metallurgical	100.0	83.3	22.9	6.3	37.5	16.7	10.4	6.3
Mechanical	100.0	96.8	16.1	19.4	54.8	6.5	3.2	0
Other engineering	100.0	97.2	25.4	22.5	33.8	15.5	1.4	1.4
Sciences, total	100.0	93.2	41.1	23.0	11.6	17.5	3.3	3.5
Physical sciences, total	100.0	96.7	47.0	13.4	28.3	8.0	2.3	1.0
Astronomy	100.0	94.7	73.7	5.3	5.3	10.5	5.3	0
Chemistry	100.0	97.2	47.0	13.9	29.6	6.6	1.7	1.0
Physics	100.0	95.0	41.2	12.5	30.0	11.2	3.7	1.2
Other physical sciences	100.0	100.0	33.3	33.3	0	33.3	0	0
Earth, atmospheric, and ocean sciences	100.0	87.1	38.6	21.8	7.9	18.8	9.9	3.0
Mathematics	100.0	94.7	21.1	43.0	19.3	11.4	1.8	3.5
Computer sciences	100.0	85.9	11.3	36.6	32.4	5.6	4.2	9.9
Biological sciences	100.0	93.2	71.3	9.7	3.1	9.1	4.0	2.8
Agricultural sciences	100.0	87.8	29.3	22.0	23.2	13.4	7.3	4.9
Psychology	100.0	94.9	31.3	20.8	14.2	28.6	1.0	4.1
Social sciences	100.0	90.5	9.3	50.9	9.3	21.0	5.2	4.3
Non-S&E, total	100.0	92.7	4.6	49.2	6.0	32.9	1.9	5.3
Grand total, all fields	100.0	92.9	21.5	36.2	10.0	25.2	2.6	4.5

See explanatory information, if any, and SOURCE at end of table.

Table 10. Percentage distribution of definite postgraduation plans of science and engineering (S&E) doctorate recipients, by sex and major field: 1997

[U.S. citizens and non-U.S. citizens with permanent visas]

Page 2 of 2

Field of study	Definite plans	In the United States					Abroad	Location unknown
		Total in U.S.	Postdoc study	Academic employment	Industry employment	Other		
Men								
Science and engineering, total	100.0	92.2	34.1	16.9	25.3	15.9	4.5	3.2
Engineering, total	100.0	93.7	16.2	9.4	51.1	17.0	3.4	2.9
Aeronautical/astronautical	100.0	98.1	19.2	3.8	42.3	32.7	1.0	1.0
Chemical	100.0	90.7	19.6	4.0	58.2	8.9	4.9	4.4
Civil	100.0	94.4	16.7	15.4	33.3	29.0	3.7	1.9
Electrical	100.0	94.8	7.8	8.6	62.6	15.9	2.9	2.3
Industrial	100.0	89.1	7.3	23.6	52.7	5.5	7.3	3.6
Materials/metallurgical	100.0	93.9	23.2	4.9	55.5	10.4	3.0	3.0
Mechanical	100.0	94.2	19.0	11.0	48.7	15.5	2.3	3.5
Other engineering	100.0	91.8	24.2	12.7	33.2	21.7	4.9	3.3
Sciences, total	100.0	91.8	39.9	19.3	17.0	15.6	4.9	3.3
Physical sciences, total	100.0	93.6	50.7	7.7	27.6	7.7	4.8	1.5
Astronomy	100.0	87.8	63.3	7.1	11.2	6.1	11.2	1.0
Chemistry	100.0	94.3	50.9	7.9	30.3	5.2	4.1	1.6
Physics	100.0	93.7	47.9	7.1	27.3	11.5	4.6	1.6
Other physical sciences	100.0	100.0	42.9	28.6	14.3	14.3	0	0
Earth, atmospheric, and ocean sciences	100.0	90.0	35.6	13.5	18.0	22.8	5.9	4.2
Mathematics	100.0	89.0	21.2	35.9	18.3	13.6	6.6	4.4
Computer sciences	100.0	95.1	12.5	23.0	47.9	11.8	2.0	3.0
Biological sciences	100.0	91.6	64.8	8.7	5.9	12.1	4.7	3.7
Agricultural sciences	100.0	90.3	28.0	23.7	22.0	16.5	6.4	3.4
Psychology	100.0	95.4	26.5	20.8	15.9	32.2	1.6	3.0
Social sciences	100.0	87.8	8.9	47.2	11.1	20.6	7.3	4.9
Non-S&E, total	100.0	91.2	4.2	48.8	7.0	31.1	3.9	5.0
Grand total, all fields	100.0	91.9	24.7	27.0	19.5	20.7	4.3	3.8

SOURCE: National Science Foundation/Science Resource Studies, Survey of Earned Doctorates